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X.

RHEUMATISM OF THE NOSE (RHINITIS RHEUMATICA).*

By W. Freudenthal, M. D.,

NEW YORK.

In a paper read, in 1894, before the Section on Laryngology of the New York Academy of Medicine, I drew attention to a certain class of diseases, which had come under my observation and which had not been hitherto described, viz: the rheumatic affections of the nose. I said that "*a priori* I could not see any reason why we should speak of rheumatism of the pharynx, of the larynx, and not of rheumatism of the nose. We have in this organ a mucous membrane which responds to the slightest deviation of the normal temperature with an inflammatory reaction, we have cartilages, muscles and nerves just as well as in other organs. Only the articulations are not as typical here as on other parts of the body, but this is of little importance. Naturally, I will not call every little coryza, which follows a catching of cold, rheumatism of the nose, although a great many of these cases are of rheumatic origin.

*Read before the Eastern Section of the American Laryngological, Rhinological and Otological Society, New York, March 1st, 1902.

I shall limit myself only to chronic cases, which to my knowledge have not been described in literature."

Since I wrote this article seven years have elapsed, and during that time I have seen many more cases of this condition, some of which I shall describe later on. Although the above paper has been quoted quite extensively, very few similar observations have been published by other authors. Perhaps we are still so much under the influence of the accessory sinus diseases that other matters are easily overlooked. In 1897, F. De Havilland Hall said in his excellent Lettsomian Lectures on Diseases of the Nose and Throat:* "Rheumatic affections of the nose have received but little attention. I cannot say that I have seen any cases in which I could assure myself that rheumatism was the cause of the symptoms referred to the nose, with the possible exceptions of a few cases in which patients complained of pain at the point of emergence of the nasal branches of the superior maxillary nerve, and even in these cases, the rheumatic origin of the neuritis is problematical. Freudenthal, however, states that a number of cases have come under his observation." Then he goes on to describe my cases.

In 1899 Sendziak, of Warsaw, wrote an excellent monograph "On Rheumatic Affections of the Pharynx, Larynx and nose."† This author so far is the only one who has published cases similar to mine. He says (p. 250): "Although there exist in the literature various isolated references in regard to the rheumatic origin of certain nasal affections (Grenham for example observed in 1880 seven cases out of fifty nasal hemorrhages during the course of acute articular rheumatism; so did Shaw) the first to discuss this question more thoroughly was Freudenthal in 1895. It seems to me that this author justly propounds the question: Why, if we believe in the rheumatic origin of affections of the larynx and pharynx, should we not extend this view also to certain nasal diseases? There is not the least doubt that a certain number of acute nasal catarrhs, originating from colds, must be ascribed to rheumatism. The same holds good for the acute affections

*The Lancet, 1897, Vol. I., p. 572.

†Klinische Vortrage aus dem Gebiete der Otologie und Pharyngo-Lar. (Haug's) 1899.

of the lateral sinuses, where, besides the local symptoms, the patient very frequently also complains of general painful lassitude, as well as of pains in the joints, muscles, bones, etc." Sendziak has seen cases very similar to mine which he describes in detail. I would like to refer the reader to this very interesting paper. In reference to his remarks concerning Grenham's and Shaw's cases of nose-bleed, I would say that these authors attribute this symptom to the use of the salicylate of soda, which had been administered for the existing articular rheumatism.* They were not aware of the fact that there is such a thing as rhinitis rheumatica.

In 1894 I described two varieties of this affection, viz.: one with visible changes in the nose, and the other without these. I must still adhere to this classification, but would add to the first category, viz.: cases with visible alterations in the nose; also such accompanied by changes on the outside of the nose, such as swellings and erythema multiforme of the nose, etc. The occurrence of the latter condition in these cases is not surprising, since it is well known that this eruption of the skin is in many respects analogous to the rheumatic angina, and it is strange that this has not been described before. At the same time, I believe that there are other eruptions of the skin of the nose which are due to rhinitis rheumatica, but I have had no occasion to observe them.

I shall now give you the details of some of my cases, and can do no better than to cite the first case described in my original paper.

Case 1. Mrs. X., about fifty-five years of age, came to me February 2, 1891. She complained of a cough, which was especially annoying in the evening, and of dryness in the throat. On examination I found a slight bronchitis, an atrophic condition of the nasal and pharyngeal mucosa, and an injection in the pharynx produced by the cough. I saw her twice, and then did not hear anything from her until she sent for me four weeks later. She told me that a few days before she had been stricken with one of her old attacks of articular rheumatism, the right knee and the

*Compare Lewiston E. Shaw's article: "Cases of hemorrhage occurring during treatment by salicylate of soda." Guy's Hospital Reports, Vol. 44, p. 125, 1887 (Vol. 29 of the 3rd Series).

larger joints of the upper extremities being affected. She had fever, which did not exceed 101° F. Her nose began to close up on the second day of this illness, and now it was entirely stopped up, so that she could not get any air through it. She had and still has headaches and pain in her nose, all of which together prevent her from sleeping. Externally nothing was seen except a slight redness of the whole nose; no swelling. On examination I did not find any part of the head sensitive to the touch, but as soon as I touched the nose, she felt pain. She experienced the same when I put my speculum into her nose, and I found that the alæ nasi were the most sensitive. They were not thickened, however, nor was anything else visible that was abnormal and could thus explain the pain in this part. The entrance of the nose was free, but further up the whole nose was clogged by a swelling which I thought to be the thickened mucous membrane. There was also present a grayish-white secretion, which both together filled almost the entire lumen of both nostrils. After removing the purulent discharge I applied cocain, but I found that even ten per cent. solution of it did not reduce the swelling at all. I gave her different medicines, but she did not feel easier on the second, nor the third day. On the fourth day only, after applying repeatedly a ten per cent. solution of cocain, could she breathe somewhat through the nose, but an hour later everything was closed up again. However, she began to improve after that day, and then menthol oil applied on a piece of cotton gave her some relief, so that she began to sleep during the night. At this time I could see very well that, after reducing the slight swelling of the mucosa of the septum with cocain, the lower and middle turbinated bodies were very much swollen. On touching them with a probe they felt hard. There was no sign of an abscess.

The fever lasted until the tenth day and then ceased entirely. From the fourteenth day on there was permanently a free passage for the air. The pains in the nose had been at times so severe that they could only be relieved by large doses of morphin. With the improvement in breathing, the pain in the nose grew less, until it gradually disappeared about the twentieth day of my treatment. At the same time her articular rheumatism had entirely left

her and she felt well again, although still somewhat weak. I had given her salicylate of soda and salol, but it never struck me that her rheumatism had anything to do with the affection in the nose, although I could not as yet explain all the symptoms in this case. I saw her a week later in my office, when I found her nose almost in the same condition as on her very first visit: the mucous membrane atrophic, the size of the middle and lower turbinated nearly normal, surely not enlarged, and a perfectly free passage for the air. She left for a milder climate and I heard afterward that she felt well.

A year later, March 14, 1892, I was summoned again to the house of this lady. She had, after a very cold spell, again her rheumatism, and at the same time exactly the same symptoms of the nose as last year. She wanted relief for the latter, as she could easily stand the other pains. This attack took the same course as the one of the previous year. The swelling of the turbinated bodies disappeared about the fourteenth day, and with this almost simultaneously the affections in the joints of the extremities. She had the same pain in the nose and the same swelling and clogging. The last two winters the lady spent in Italy and I have not heard anything further about her.

I give now the histories of some of my later cases.

How difficult it often is to reach the correct diagnosis, the following case may be a proof:

Miss ——— consulted me first on June 11th, 1900, at the advice of her family physician, Dr. Emanuel Baruch. She had had some sort of an eczema on her face and body, and it seems that this extended, later on, to the nose. She consulted a dermatologist, who cauterized the introitus narium repeatedly without affording her the least relief. When she came to me she complained of obstructions in the right nasal cavity and of "terrible" headaches, especially on the right side. She also had pain in the ears.

On examination I found the introitus narium perfectly bare of all the vibrissæ, which had been diligently removed by the skin specialist, and many points of cicatrizations as evidence of his destructive work. There was, furthermore, an ecchondrosis of the septum narium on the left side, and hypertrophy of the right middle turbinal.

The ears were perfectly normal, although the patient also complained of pain in them. I gave her a mild salve for the nose. As the weather was hot, she soon went to the country, feeling apparently better.

In January, 1901, she consulted me again. All summer she had been perfectly well, but during the winter her old pain returned; in fact, more severely than before. She suffered from intense pains on the right side of her nose which radiated to the eyeball, the ear, in fact the whole head and body. These "neuralgic pains" were so violent that she could not attend to her vocation. This time I found a very pronounced congestion in the right nasal cavity, the left one showing the same appearance as before. As there were no distinct causes for this nasal pain to be found, the accessory sinuses being perfectly normal (no discharge), eyes and ears normal too, I began questioning for other symptoms, and elicited that she had been a sufferer from rheumatism for a long time. Indeed, it is remarkable that none of the specialists previously consulted had placed her on anti-rheumatic treatment—lucus a non lucendo! After reaching this diagnosis, I ordered hot baths and vinum colchici, t. i. d., 20 drops. Within three day she returned, much worse. After the first hot bath, she had left her window open and during a very windy night had caught fresh cold. After this had subsided she took 40 drops of vin. colchici, t. i. d., and now feels like a new person. She has had no trouble since, as she takes her medicine as soon as premonitory symptoms appear.

In studying this case, we note that we have to deal with an exudative inflammation of the right side of the nose, which affected not only the neighboring parts of the face but, besides, indirectly involved the whole system. Whether the rheumatism attacked the nose first is difficult to decide, as the beginning of this history is somewhat obscure. However, it seems quite rational to believe that her nasal trouble of a year ago was of a rheumatic character. The patient felt better as soon as the warm weather set in. That perhaps the nose was the primary seat of the rheumatic affection I am inclined to believe. We have analogous conditions in other parts of the upper air tract. We know that the pharynx, especially the tonsils, are fre-

quently the seat of a primary infection, and not only of rheumatic, but of other nature. I need mention here only measles, scarlet fever, etc., in which the primary angina is a well known factor. We further know that the retropharynx is often the portal of the infection in tuberculosis, and I take the liberty of drawing your attention to my own investigations in this direction, which were published in 1896 and 1897. Perhaps the nose is still more often the locus minoris resistentiæ. But the fact is that germs and other foreign bodies which come in contact with the mucous membrane of the nose can be eliminated much more readily from this part than from the retropharynx. In the above case, perhaps a weak point was created by the constant unnecessary manipulations, such as cauterizing, epilations, etc., and through this the rheumatic virus found its entrance. Whether this was really so, is hard to prove. The fact is that here we have a typical case of rhinitis rheumatica, which promptly yielded to the proper treatment, thus relieving the patient of a great deal of pain and annoyance. (Parenthetically, I would like to mention that the eczema of the face and meatus narium was the first symptom, and not until later did the pain in the nose appear.)

The following cases are typical for certain distinct classes of the disease:

Case 3. L. T., 34 years of age, banker, is of athletic build and generally enjoys good health. He has had pains in the nose and along the supraorbital nerve, and a profuse discharge from the nose for the last four years in winter, whenever there are north or east winds. He has consulted many specialists in this city, but without any satisfaction. As he came to me during an interval, I could find nothing pathologic in his nose and retropharynx. I suspected, however, rheumatism and told him so. The next time he came there was a marked congestion and swelling all over the nasal mucous membrane; more so on the left side. He was just in an attack.

How is it that east and north winds affect him? The explanation is very simple. He is rheumatic, as I soon discovered. When we have east winds we have rain and snow and an abundance of moisture in the air, which produce a chilling of the body, and easily brings on rheum-

atism. The north winds have to travel over many miles of snow before they reach us, and besides carrying along a great deal of moisture, also bring very cold weather, a still more important factor in our cases. When south winds prevail the patient feels well, and that is quite easily understood, in view of the warm currents of air they transmit.

Case 4. Ida S., twenty-three years old, a native of Hungary, entered the Montefiore five years ago, previous to which time she had been a domestic. Her mother died of phthisis. The patient has always been sickly, but gives no history of rheumatism except that the limbs were swollen three years ago. Menstruation began at fifteen and was always irregular. During last summer it ceased completely, and is scanty now. Last summer she had an attack of hemiplegia with loss of speech, and a brief period of unconsciousness. She complains at present of occasional pains in the limbs when the weather changes. Palpitation of the heart occurs on slight exertion. Occasional swelling of the feet present; appetite is poor, the bowels irregular, and rectal pains are experienced during a movement. Status præsens: The patient is pale, and has a slight icteric hue. She sweats easily. The mucous membranes are anemic; the feet slightly edematous; pes planus. The heart action is irregular; at the apex there are soft blowing systolic and diastolic murmurs; at the orifices the sounds are comparatively clear. The pulse is 96, small, soft and intermittent at times. The tongue is thickly coated. The patient, who is very tall, weighs 126 pounds.

On examination there was seen on the outside of the nose, and and more particularly on the left side, a redness occupying especially the middle part of the nose. This area is sensitive to the touch. Anterior rhinoscopy shows somewhat enlarged nasal passages, which are lined with a dark reddish, non-hypertrophic mucous membrane. This is especially sensitive to the touch in the vicinity of the middle turbinal, corresponding to a similar place on the exterior of the nose.

I ordered salicylate of soda which she was able to take in quite large doses, and soon she felt better. On stopping the salicylate the pains rapidly returned, especially

as the weather continued cold. We, therefore, kept her for weeks under gradually diminishing doses of salicylate of soda, and have discontinued it now entirely, the patient being completely free from pain.

It is beyond doubt that here too we had to deal with one of the cases of rheumatism of the nose (rhinitis rheumatica), which are so very rare and which promptly improve, as soon as they are treated correctly. There are some cases, however, which I had not seen before, and which exhibit often more marked changes on the outer part of the nose. At the same time it is interesting to watch how the conditions within the nose alternate under the change of the weather, medication, etc.

Mr. A. N., thirty years of age, electrician, has had "catarrh" for over a year, which did not annoy him much. Of late, however, he has noticed a swelling on the exterior of his nose, which made it appear quite ugly. Besides this, he often complains of pain in the nose.

On inspection, May 7th, 1900, a swelling on the dorsum nasi, more toward the right, was distinctly seen. It felt hard to the touch. Corresponding to this was a hypertrophy of the right middle turbinal. On all the parts the nasal mucous membrane looked pale and atrophic. I treated him with indifferent remedies, as I was not quite certain about the diagnosis. May 10th: It was raining all day yesterday and to-day and he feels more pain. The swelling on the dorsum nasi very sensitive to the touch. The middle turbinal is more swollen and very much congested, while the other parts of the mucous membrane look pale. This contrast is especially noticeable when we compare it with the healthy, i. e., the left side, of the nose, where the whole mucous membrane shows an extraordinarily pale color; patient complains of "feeling tired all over."

May 17th: He had received anti-rheumatic treatment and has no pain now. That "tired feeling" is gone too, but he "don't know whether the medicine did it." There is very little to be seen of the swelling on the outside of the nose and this disappeared, as I want to say right here, within the next three weeks entirely, never to return (this after a period of almost two years). However, the pain and the swelling of the right middle turbinal within the nose returned several times, while the patient was under my

observation. This was generally the case when the weather was inclement. I heard recently that the patient is well, with occasional attacks of rheumatism, but have not seen him for six months.

I have two more cases on record, which are, in their essential points, very similar to the one just narrated. In these two cases the rheumatic arthritis was very pronounced, and it was repeatedly observed that the pains in the joints were preceded by exacerbations in the turbinated bodies of the nose, which at such times usually showed a marked hyperemia and congestion. Similar conditions have been reported of late from the clinic of Prof. Senator of Berlin, by Dr. Menzer.*

If we now ask what constitutes rheumatism, we will see that the opinions differ widely. "It can be plausibly argued that many distinct diseases are included under the term, while, on the other hand, it can be just as reasonably urged that rheumatism includes all bacterial infections—having a simple myalgia at one extreme and pyemia at the other."†

I should like to draw your attention here to a paper by Drs. Boynton and Paine.‡ According to them, most writers attribute rheumatic fever to an infection with a diplococcus. Others assume a specific anerobic bacillus; still others believe that it is due to an invasion of streptococci and staphylococci. Boynton and Paine found in eighteen cases the diplococcus regularly present, so that the name of "diplococcus rheumaticus" seems to them justified. There is no doubt that this diplococcus has been found by other competent observers as well. But does this mean that it is really the cause of rheumatism? I think not. At least, recent experiments do not seem to speak in favor of such a theory. Thus, for example, Menzer§ made cultures of streptococci from a case of undoubted septic infection. After inoculating them on guinea pigs, very pronounced

*Berlin Klin. Wochenschr., p. 40, 1901.

†H. W. Loeb, in an editorial, St. Louis Med. Review, Oct. 12, 1901.

‡British Med. Jour., Sept. 21, 1901.

§"Ueber Angina, Gelenkrheumatismus, Erythema Nodosum, Etc." Berlin. Klin. Wochenschr., p. 10, 1902.

multiple exudations in the joints were produced. This proves that streptococci from a typical septic infection have a specific predilection for the joints, even where there were no symptoms of an arthritic lesion present in the person from whom the cultures were taken.

The question concerning the origin of infectious diseases, may they be what they may, cannot be solved from a bacteriologic standpoint alone. We have to consider the whole human system, its constitution at different ages, and how it reacts under varying conditions to the invasion of the ubiquitous bacteria (Menzer). You all know that, under perfectly normal conditions, there are found in the nose, in the retropharynx, on the tonsils, etc., a host of pyogenic bacteria that do no harm to their possessor. As soon, however, as the equilibrium of an organ is destroyed by any cause, these bacteria will proliferate, and perhaps by a mere chance one species or another will predominate. We have no right, therefore, as I believe, to call any coccus the specific organism of rheumatism. Supposing a number of people attend a ball, and are suddenly exposed to the cold winter air. One reacts with an acute coryza, another with an angina, the third with bronchitis, the fourth with pneumonia and the fifth with rheumatism. Are we then to believe, says Menzer,* that the one person inhaled the infectious bacterium of coryza and the others those of angina, bronchitis, pneumonia or rheumatism? Is the idea not much more plausible that different individuals, according to their constitutions and habits, are affected differently by external influences?

Be this as it may, I will not discuss this highly interesting and important part of our question any longer. Allow me to say that, whatever the cause of rheumatism may be, it shows itself in the nose as well as in other parts of the human organism, and appears both as an acute and chronic affection. In conclusion, I would ask you to be on the lookout for such cases in your practice, and trust that my observations, as well as those of Sendziak, will aid you to some extent, at least, in recognizing this condition, and thus enable you to more readily effect a cure.

*l. c., p. 34.

XI.

REPORT OF A CASE OF TEMPORO-SPHENOIDAL ABSCESS, WITH PRESENTATION OF PATIENT.*

By James F. McKernon, M. D.,

NEW YORK.

AURAL SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

This case is reported, not because there is anything particularly unusual in its history, but on account of one point in its mode of development, and because I believe every case of brain abscess operated upon, whether successful or fatal, should be reported, as, many times, we can learn quite as much, if not more, from a fatal case as from a successful one.

The history of this case is, briefly, as follows:

J. L., boy, nine years of age, was brought to my service at the hospital in March, 1901. His parents, who accompanied him, gave this history: He had had measles when three years old, followed by a running from the left ear, which up to the present time had never entirely ceased except for a few days at a time.

Fourteen months ago he had complained of severe pain in the left ear, after taking cold; for several days following this, the ear discharged very freely, and about ten days after the pain began in the ear he complained of pain behind the ear, over the mastoid. This was followed, four days later, by a swelling about the size of a small egg over the mastoid process.

He was seen at this time by a physician, who made an incision through this swelling and evacuated quite a quantity of pus.

After this the boy improved, the swelling back of the ear subsided, and in a few weeks he was apparently as

*Read at the meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society, New York City, March 1st, 1902.

well as ever, except for a slight discharge coming from a depression over the lower portion of the mastoid, where the swelling had existed, and a more or less continual discharge from the auditory canal of that side.

Six months ago he began complaining of headache over the whole of the left side of the head—would occasionally be sick at his stomach, refuse to eat, and was very irritable. At times during the night, while asleep, he would suddenly start and scream as if in pain; and upon being awakened was not conscious that he had made any disturbance.

About a month ago the head pain became so severe that he could not sleep except at intervals each night. He would refuse food, and when he did take his food would frequently vomit it. He became very pale, unusually fretful, and had lost some fifteen or sixteen pounds in weight.

The discharge from the auditory canal and the opening behind the ear would almost entirely cease for several days and then would suddenly reappear, and was of a very foul odor.

At the times when the discharge would cease the headache was always more distressing.

Five days ago he vomited, became very drowsy, would not answer when spoken to, complained of intense pain on the left side of his head, and when aroused for food or asked questions, he would mispronounce words and call articles by wrong names.

This condition has continued till the present time.

PHYSICAL EXAMINATION.—Physical examination showed a boy looking scarcely six years of age, emaciated, with pale septic look, drowsy and inclined to sleep in his mother's arms; tongue dry and glazed, skin dry and yellowish, pupils unequal, with a temperature of 99.2, pulse 68, respiration 16.

It was almost impossible to rouse the child, and when this was done he would refuse to answer questions, place his hand over the left side of his head, and, with a low moan or whine, would drop off into a state of coma again.

Examination of the ears disclosed on the left side a rather profuse greenish discharge, with an extremely foul odor, coming from the canal. Upon wiping this discharge

away and inspecting the deeper portions of the canal, it was seen that there was almost complete destruction of the drum membrane; and a soft polypoid mass, resting partially on the inner wall of the tympanum and partially on the floor of the canal, was discovered. This mass had its origin in the upper and posterior part of the vault.

Examination of the mastoid showed a depression about half an inch from the tip, and from this depression a thin serous discharge came, having a markedly unpleasant odor.

The child was in such a state of profound coma that pressure over the mastoid or percussion over the left side of the head did not seem to disturb him in the slightest degree.

The eyes were examined; the left pupil was slightly contracted, there was choked disc, and hemorrhage throughout the retina. The right eye was normal.

A diagnosis of brain abscess was made, and an immediate operation advised. The urine was examined and found to contain rather a large quantity of albumin.

OPERATION.—The patient was prepared for operation, chloroform administered; the polypoid mass, together with portions of the malleus and incus, was removed, and the middle ear thoroughly cleared out; a probe was then passed through the sinus over the mastoid, and came in contact with roughened, uneven areas of bone. The mastoid was exposed in the usual way, and a thin, creamy discharge found throughout.

Communication was established between the antrum and middle ear; the bone forming the roof of the antrum and floor of the middle fossa was removed with the forceps, and here the dura looked perfectly normal. Continuing the incision forward in the soft parts so as to expose the bone directly over the tegmen tympani, the bone was then removed completely across the floor of the middle fossa, beginning at the point where it had been stopped to prepare the flap. After a small area of bone directly over the tegmen had been removed, the dura was found to be darkened in color, the discoloration seeming to extend upward and inward. The bone was removed in this region about as large as a fifty cent piece, and everywhere the dura looked unhealthy, and just above the

center of the opening was somewhat softer than any other portion. A transverse slit was made in the dura at this point with a knife, the dura retracted, and a puncture about an inch in depth was made with a knife in the brain substance. This was followed by a discharge of very foul smelling, greenish yellow pus. The finger was passed into this opening, and more pus and broken down brain substance was evacuated. Blunt retractors were used to separate the abscess walls and to allow as thorough an evacuation as possible. The cavity was then gently irrigated with a hot normal salt solution, and only enough used to thoroughly wash out the cavity. A strip of plain sterilized gauze was rolled in the form of a wick, this moistened with a salt solution, and in turn rolled in a powder composed of equal parts of boric acid and iodoform. The wick was then carried down to the bottom of the abscess cavity, and the cavity very loosely packed so as to allow as complete a collapse as possible of the abscess walls.

The flap in the soft tissue was drawn backward and sutured up to the point of drainage from the cavity. The usual dressing was then applied, and, as the patient's condition was not good, direct transfusion was done with a normal salt solution.

From this time on the patient made an uninterrupted recovery. The first dressing was removed at the end of four days, and very little discharge was found; the cavity was gently irrigated with a warm solution, and packed loosely as before.

At the end of 18 days the brain cavity had entirely closed, and on the 24th day after the operation the boy was discharged from the hospital to return twice a week for the mastoid dressings. The mastoid wound was rather slow in healing, and as you will see upon examining the the patient, has left quite a large permanent depression corresponding to the antrum, which will later be closed in by plastic operation.

The discharge from the external auditory canal ceased after the first week.

The aphasia persisted for only 5 days after operation; the pupil quickly resumed its normal appearance, and at the time of his discharge from the hospital there was only a faint trace of albumin present in the urine.

His hearing at the present time, on the affected side, is for the whisper 12 feet.

I have many times spoken against the custom, formerly so much in vogue, of performing a Wilde's incision (in this class of cases or, in fact, any other) as was done in this case; and the report of this case is as much to reiterate my protest against this method of treatment as it is merely to report a successful case; for had a radical operation been done upon the mastoid at the time the Wilde's incision was made, it is safe, I think, to say that this little patient would have been saved months of suffering, besides avoiding any cerebral complications and subsequent danger to life.

Another point, and one I believe to be of vast importance is that, when cases of chronic purulent otitis media come under our observation, we should examine the case carefully to determine the presence or absence of intratympanic caries, and if caries be present, its removal should be advised at once so as to prevent the possibility of any subsequent intracranial infection taking place.

XII.

LEUKOPLAKIA BUCCALIS, WITH REPORT OF CASE TREATED WITH X-RAYS.*

By Otto J. Stein, M. D.,

Chicago.

In the presentation of cases before our important medical gatherings or in the recital of such cases in the medical press, it has become almost a universal practice for us to elucidate such cases as reflect the greatest credit upon our personal skill or upon some special method employed or particular remedy used; hence it seems as if one is about to break one of the sacred precepts of our great institution by being so indiscreet as to inflict upon the already over-burdened practitioner the story of a failure in treatment. But such is my mission to-day. Perhaps my first motive in making a report of this case before this body is the interest the entire civilized world has of late taken in the therapeutic value of the X-rays. We, as nose and throat specialists, are particularly interested in this new branch of diagnostic and therapeutic medicine, because it holds out to us some hopes in facilitating our means of clearing up doubtful diagnoses, and possibly a means of treating some of our almost inaccessible and so-called inoperable pathologic conditions.

In presenting the history of this case to you, I am fully cognizant of the fact that "one spring does not make a river;" but at the same time I cannot help recognizing the importance of the effect of the X-ray treatment in this particular case and the influence it might bear upon subsequent cases in your and my practice. As far as I have been able to ascertain by a casual perusal of the literature, I have not found any record of a similar case treated in this particular manner. In brief the case is as follows:

P. N., aged 54 years, of Norway, and a steam-fitter

*Read before the Middle Section of American Laryngological, Otological and Rhinological Society at St. Louis, Mo., Feb. 22, 1902.

by trade, presented himself for treatment October 21, 1901. Nine months prior to this he first noticed a soreness on the inner aspect of the left cheek. Several small white areas were at the same time noticed by the patient, located at the place where the soreness was felt. Three months prior to my seeing him he had a piece of the affected mucous membrane removed, the size of one's finger nail. The scar may be distinctly seen now. At the time of my seeing him, one saw a thickened, hornified, somewhat wart-like appearance of the mucous membrane of the inner left cheek, just in front of the ramus of the lower jaw and about half the size of a little finger nail. Its surface was rough and somewhat pitted, of a pearly white appearance, tough and firm to the touch, very adherent, bleeding readily on free manipulation, and somewhat painful to touch and when eating. More forwardly located toward the angle of the mouth, and on both sides, were seen a number of milk-like, irregular patches; some of them whiter and thicker than others, showing their raised character. These were not sensitive in any way.

Slight enlargement of a few of the lympatics on the left side of the neck could be made out. The patient strenuously denies any history whatever of syphilis. Nevertheless he was put on increasing doses of iodid of potash and mercury and at the same time local applications of aniline were instituted. Six weeks of this treatment showed, in place of improvement, a steady, although very slow progression of the trouble. The area of hornified membrane seen on first examination was exsected and subjected to a careful scrutiny by the microscope, the Zeit Pathological Laboratory reporting the specimen to be an epithelioma. At this time I presented the patient to the Chicago Laryngological Society, promising to make a later report after institution of further treatment. The patient being averse to anything of a radical surgical nature, I suggested his trying the application of the X-rays. To this he readily assented, and through the kindness and courtesy of Dr. William Allen Pusey, of Chicago, he immediately commenced a course of treatment by means of the X-rays. It is now eight weeks since this form of treatment has been employed, consisting of daily exposure to the rays for a

period of 15 minutes. The rays are collected and conveyed to the affected area by means of a funnel made of tin, about 6 inches long and 3-4 inch in diameter at its distal end, inserted in a plate of lead which covers the face. I have seen the patient several times since this form of treatment has been in progress. The appearance of the trouble as seen only a few days ago is as follows:

Where the small-sized, white, hornified and raised area was at first, we now have one the size of a thumb nail or larger, which is very painful to the touch. Anterior to this, where we saw the milk-white patches, is to be seen ulceration of the mucosa, showing a tendency to running together. At places, the ulcerations have healed, but again the mucous membrane is raw and angry-looking, and exceedingly painful. On the right side the milk-like patches are still to be seen, but no further trouble. Along the gingival margin of the lower jaw and in front, also almost the entire inner aspect of the lower lip shows the formation of these pearly-white patches known under the name of leukoplakia.

A very few remarks on the subject of leukoplakia buccalis may be sufficiently pertinent to the case reported, to merit your indulgence for a few minutes more. The condition is highly important on account of its almost insignificant appearance, with very nearly total absence of subjective symptoms, but frequently progressing before its recognition to a state of malignancy with fatal termination. The disease is known under a variety of names, but leukoplakia is best expressive of its general appearance and hence the most acceptable term to use. On account of its non-expressive appearance, the dentist is perhaps the one who first sees and recognizes the condition.

A thin and sensitive mucous membrane has been suggested as a predisposing factor, which under the proper irritative influence is productive of the disease. Amongst the irritating influences are recognized tobacco smoking and chewing, alcoholic drinking, very hot and spiced food, neglected teeth and syphilis. It was formerly thought that the disease was a mucous membrane manifestation of some form of skin disease, as psoriasis, herpes and lichen planus.

The appearance of the disease as usually first recog-

nized is that of pearly-white or milk-white irregular plaques or patches of varying size, smooth and glistening, causing no discomfort whatsoever, appearing anywhere on the mucous membrane of the cheeks, lips, gums, tongue, palate and fauces. Later they become more thickened and hence elevated. Also more hardened, until they may present a rough and pitted surface, hornified to the feel and markedly elevated. Either one of these two conditions may begin to fissure and finally ulcerate, resulting in a very painful affection.

In the case reported to you the three pathologic conditions were present, *i. e.*, milk-white patches, hornification (ichthyosis) and ulceration. It was the hornified membrane in this case that showed an epitheliomatous structure under the microscope. It is my opinion, based on the few cases I have seen, four in number, that neither age, sex, nor syphilis are necessary factors in the production of the disease; that there is always a tendency to malignancy, and, finally, that predisposition plays an important role in its production.

Mindful of the fact that the whole medical world has been carefully watching the results of the application of light rays in the treatment of various diseases, and at the same time conversant with the brilliant work done in the relief and cure of such conditions as lupus and carcinoma of the skin, I fostered the gleam of hope I entertained that the same success might be achieved for affections within the mucous cavities of the head, as was so brilliantly being obtained on the surface of the body. With this hope I suggested to our patient the X-rays as a possible means of relief from his terrible disease.

XIII.

TREATMENT OF KERATOSIS OF THE FAUCES.

By Charles W. Richardson, M. D.,

WASHINGTON.

In the consideration of this subject, it is not my intention to go into the subject of its pathology any further than is necessary to explain the reason of the failure of many lines of treatment that have been instituted for this condition, and the suggestion of the only course of treatment which seems to be attended with any restful issue.

Beginning with the observations of Heryng, Colins, and Garel that, in mycosis of the pharynx, there were certain submucous and epithelial changes in the tissue affected, and the excellent article by Siebenmann, in which he describes so throughly his pathologic finds, which have been substantiated by Brown-Kelly and Kyle, there seems to be an accumulation of evidence to the fact that all cases of so-called mycosis of the pharynx are not mycotic affections, but frequently changes in the sub-mucosa and epithelial layers of the parts affected, produced through influences not yet clearly defined.

My investigations upon this subject accord most thoroughly with those of Siebenmann, Brown-Kelly, and Kyle. In none of the cases which we have examined has the leptothrix been found, although most of the specimens have been those of sections of the tonsils. Further, as to the bacteriologic investigation, I cannot go, as we feel that, at the present writing, our material is not abundant enough to warrant conclusions.

From the investigation of the authors above mentioned, and from my own studies of this condition, it seems to me that the chronic condition which is so often recognized as mycosis of the pharynx is, in the majority of cases, a keratosis; also, that, when the leptothrix is present, it occurs mostly as an accidental deposit upon the keratoid

quills. There is no doubt that there is a condition due to the action of the leptothrix, present more frequently in the buccal, and occasionally in the pharyngeal cavity, but more acute in its type and entirely different in its clinical and microscopic appearances from the disease under consideration.

In considering the treatment of this affection, it must be well borne in mind that the alteration in the mucosa seems to cause no alteration in the general physical welfare of the patient; that the local symptoms are very mild, a sensation of pricking, stiffness, or fullness, being noticed in the throat; and that the disease has a tendency to a spontaneous recovery in a period ranging from six months to several years. Most frequently, after some days of abnormal sensation in the throat, the patient, or his friends, discover the characteristic tufts on the tonsils or pharyngeal wall. It was this discovery which caused him to consult a physician. If it were not that most persons were irrational with regard to their physical conditions, and that the psychic influence from the mild local irritation would be deleterious, I should suggest that no local treatment be instituted.

The demand is usual for the removal of the "spots," and this as rapidly and thoroughly as possible. The general condition of the patient should be carefully gone over, and, if any impairment of the functional activity of any system or organ, is noticed, these should be corrected. Most frequently there will be found more or less disturbance of the gastro-intestinal tract, and treatment should be suggested to correct the disordered digestion. For the local treatment, various medicinal agents, such as the astringents, alteratives, chemical cauterizants, and antiseptics have been suggested. The use of these agents has been suggested through the accepted dictum that the disease is solely due to the activity of the leptothrix buccalis. If this parasite were the sole cause, it would seem that the application of more active antiseptic solution should bring about a thorough and quick resolution. The numbers of these agents suggested would indicate their failure to produce the desired result, and such is the apparently accepted view. Even should the changes in the mucosa be due to the action of the leptothrix, the changes

in the structure through the cornification of the epithelium would prevent the absorption of sufficient of the solution to produce any action on the deep seated threads. Most workers who have had any experience in the treatment of this affection are agreed that only the thorough and deep seated removal of the diseased tissue is attended with any permanent result. When the quills, or tufts, are situated upon a tonsil, the tonsil should be excised as thoroughly as possible with the tonsillotome, scissors, or tonsillar punch. Those quills which cannot be removed in this manner, when situated upon the tonsil, or whereever else located, should be attacked with the galvanocautery. Each quill, or tuft, should be separately attacked, and it, as well as the adjacent tissue, destroyed well down into the sub-mucosa. Frequent and recurring use of the cautery will be necessary in order to bring about resolution. Usually within a period of four weeks the most obstinate cases will yield to this method of treatment. The reason why this method of treatment is successful is that we destroy the matrix, if I may use such a term, which seems to be the sub-mucosa, from which these tufts seem to bud forth.

XIV.

THE ETIOLOGY OF DEFORMITIES AND DEVIATIONS OF THE NASAL SEPTUM.*

By William Lincoln Ballenger, M. D.,

CHICAGO.

So much has been written upon this subject that I will not attempt to review the literature, but will take the more commonly accepted theories and briefly discuss their merits.

W. J. Freeman says: "The chief cause of deviations, and probably of many other deformities of the septum, is the lack of development of the hard palate. Trendelenburg was, perhaps, the first to associate the high-arched palate with deformity of the septum, but did not, so far as I can learn, consider it due to a lack of development of the maxillary bones. Loewy expresses somewhat the same idea, but regards the Gothic or high-arched palate as of rachitic origin. Zuckerkandl rather scouts this idea of Loewy, and says he has been unable to associate rickets with deviated septa, and that it is chiefly the lower jaw, not the upper, which exhibits a rachitic influence.

"On the other hand, it is the every-day experience of us (Freeman) all to find the high-arched palate associated with a deviated or otherwise deformed septum. Thus, in 302 cases of high-arched palate I have examined lately, there were twelve only where there was no marked deformity of the septum. Here, then, we have 96 per cent. of deformed septa, which shows that there is undoubtedly a very close relationship between the high arch and septal deformities. One must not, however, in drawing conclusions as to the relationship between the Gothic-arched palate and deformities of the septum, consider that every high arch is an abnormal one. In studying the skulls in the Mütter collection, I found that a perfectly straight sep-

*Read before the meeting of the Middle Section of the American Laryngological, Rhinological and Otological Society, Feb. 22, 1902.

tum was not commonly associated with a high arch. This, however, was chiefly in dolichocephalic heads in which, with the high, narrow skull, there was associated a high hard-palate and, in spite of the latter's position, the choanæ were also very high and narrow. I would add, however, that the skulls were those of non-Europeans, in whom, as Zuckerkandl has pointed out, one finds deformities of the septum much more infrequent than with us. As we have seen above, the infant hard palate is of the Gothic type, and anything which interferes with the skull and perfect development of the child prevents also the development of the hard palate and, consequently, its descent. Indeed, as years go by, the Gothic arch becomes more and more peaked by the further development of the aveolar processes and the eruption of the teeth. On account of the high position of the palate, the septum must bend or twist, accommodating itself to the boundaries imposed by the unyielding framework of the bones with which it articulates. Another point in favor of this view is that mentioned by Welcker, that in some cases there is a descent of one of the superior maxillary bones, the other remaining high-arched, in which case the convexity of the deviation is toward the lower."

Eugene S. Talbot* has written more extensively and carried on a wider range of observations regarding deformities of the facial bones, including those of the nose, than perhaps any other investigator. His views are briefly presented in the following quotation:

"Morgagni believed they were due to excessive development of the vomer. Trendelenburg held that they were due to a crowding up of the high-arched plate, as he had observed the two conditions frequently connected. Jarvis has reported four cases, all in the same family, and suggests that they are due to direct hereditary defect; while neurotic or degenerate conditions which underlie the building up of the system may produce the deflection, direct hereditary here, as elsewhere, is rare. Schaus and Welcker's investigations show there is a faulty development of the facial skeleton. Bosworth and others believe that septal deformities are due to traumatism.

*"Irregularities of the Teeth," pp. 175, 195 and 196.

According to Bosworth,* "The clinical history of many of these cases affords direct evidence of this, and even in those cases in which the direct injury is not testified to, I think it safe to say that an injury has occurred, which may have been of so slight a character as not to have excited especial attention at the time of the occurrence. An injury to the nose need not necessarily give rise to the immediate development of a notable deformity, as in fractures, but it may set up a low grade of morbid action, which, going on through a number of years, will finally develop a condition by which the normal function of the nose is seriously hampered. The point on which I would lay especial emphasis is that the deformity is primarily the result of traumatism and secondarily of a slow inflammatory process which results therefrom."

Talbot continues: "Deviation of the nasal septum to one side or the other is the result of an unequal development of adjacent bony parts, more especially and directly of that of the turbinated bones. It depends largely, if not exclusively, upon the development and position of these latter. They, in turn, are dependent in great measure upon the development of the facial bones, which are modified as the facial angle increases and prognathism is lost, the turbinated bones being, as it were, exostosed, not molded in many directions by adjacent parts, encroaching more irregularly upon the nasal cavity, as their origins are disturbed or dislocated. Freedom of these nasal passages for transit of respired air is essential. In normal respiration the tendency is for both nostrils to share equally. The natural consequence is that the vomer, the ossification of which is incomplete until puberty, is deflected and occupies, as a rule, nearly a midway position between the bony prominences on either side. Deflection of the septum, hence, is a compensatory arrangement for the evolutionary variations of facial development. It is, therefore, most frequent in the higher races, while in the lower its occurrence is markedly less.

"Instability of tissue-building is to be expected in neurotics and degenerates. It is easy to see how, with such an unstable bone tissue to build upon, the mucous mem-

*Diseases of the Nose and Throat.

brane of the nose can take on atrophy, hypertrophy and adenoid growths, resulting in mouth-breathing.

"Total collapse of the outer walls of the nose is frequently observed among neurotics and degenerates. This is associated with arrest of development of the bones of the face, jaws, deformities of the dental arch, weak contracted chest, round-shoulders, husky voice, etc. In most cases of this description the nose is very long and thin. The nasal bones are excessively developed and arrested, with marked deflection of the septum. Frequently nasal catarrh is present. When the patient attempts to inhale air the outer walls are brought together and nose-breathing is impossible."

An analysis of the foregoing quotations, from Freeman and Talbot, gives an epitome of the theories that have been advanced and defended as to etiology of deformities of the nasal septum. These theories may be tabulated as follows:

1. Morgagni thought they were due to excessive development of the vomer; the vomer crowding upward against the descending perpendicular plate of the ethmoid causes them to deflect to one side in order to allow of their continued development.

2. Trendelenburg and Freeman think the chief cause of the deflection is in the persistent high or Gothic arch of the hard palate. The vomer and perpendicular plate of the ethmoid are thereby crowded, and deflect in order to find room for further complete development.

3. Jarvis believes the cause is heredity and quotes observations in support of this theory.

4. Schaus and Welcker advance the hypothesis of a faulty development of the facial bones, including those of the nose.

5. Bosworth argues that traumatism is the chief cause of deflections.

6. Talbot takes the theory of Schaus and Welcker and carries it still further back and says malformations of the septum are due to neuroses or stigmata of degeneracy, which result in irregular development of the facial bones. He believes that the pigeon chest, adenoids and deformed nasal septa are all due to the same neurotic influences,

which arrest development in some parts while in others there is an increase in the development of the parts.

It is difficult to arrive at a final conclusion concerning these theories, as data of almost any kind can be found by one who diligently searches for it. It is easy to say there is excessive development of the vomer, and to report so many thousands of observations on skulls in which this theory is substantiated. Trendelenburg and Freeman have satisfied themselves that the Gothic arch is the cause. They say the high arch of childhood does not descend as it should and that the space for the vomer and ethmoid plate is thereby encroached upon and deflection results. Talbot and others have studied the so-called high arch and find it rarely exists; that in some instances there is lack of lateral development of the superior maxilla which gives rise to the Gothic arch, or what appears to be an abnormally high arch. Actual measurements show them to be no higher than normal. Then, too, Talbot claims many hard palates which are lower than the average are attended by septal deformities. He does not deny that traumatism does in some instances account for septal deformities, but he does deny that it is the chief cause of deviations. He believes that consanguineous marriages predispose to the neuroses, and that facial deformities result therefrom. He holds that the facial bones are transitory, more subject to developmental influences than most parts of the skeleton, hence are either arrested or over-developed in those tainted with the stigmata of degeneracy.

Dr. Talbot's views present the most rational explanation of this much mooted question that has yet been offered. He does not name the over-development of a particular bone, nor does he claim the failure of the palatine arch (roof of the mouth) to descend as being the cause of deviations of the septum. If these conditions are present he claims they are incidental signs of a neurosis or degeneracy. The factor back of an excessive development of the vomer, or of a Gothic or narrow (not high), arched palate, is also back of the deformed septum.

In conclusion, I will epitomize the etiology of deformities of the nasal septum as follows in the order of importance:

a. Neuroses or stigmata of degeneracy which cause

either an arrest or an excessive development of the bones of the face including the nose, one of the expressions of the neuroses being deformed septa. (Talbot.)

The theories of Trendelenburg, Freeman, Morgagni, Jarvis, Schaus and Welcker are swallowed up in that of Talbot. The individual theories they advance but imperfectly convey the true explanation, while Talbot's comprehends them all and strikes at the root of the matter.

b. Bosworth's traumatic hypothesis is true as to a certain number of cases. That it explains a majority or even a large per cent. of them is doubtful.

The phraseology used by Talbot may be objectionable inasmuch as it assumes that there are "stigmata of degeneracy" present in all cases not due to traumatism. It would be better, perhaps, to say that deflections of the septum are usually due to an incoördination in the development of bones of the face, including those of the nose.

100 State Street.

XV.

ESSENTIALS IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS.*

By Robert Levy, M. D.,

DENVER, COLO.

PROFESSOR OF LARYNGOLOGY AND OTOLOGY, GROSS MEDICAL COLLEGE

Notwithstanding the vast amount of literature on laryngeal tuberculosis constantly appearing, our interest in this subject is in no degree lessened. The study of this disease is still in its infancy and as methods of treatment one after another are presented to us, the maze in which we find ourselves becomes more and more bewildering. We seem to be groping largely in the dark and the more cases one sees the more he is impressed with the importance of attempting a solution which shall offer more definite guidance for the treatment of this important and distressing affection.

Colorado has for years been very attractive to patients suffering from tuberculosis in all its forms, and those of us who have practiced there for any length of time have enjoyed special advantages for study and investigation. Unfortunately the more cases we see the more confusing and unsettled becomes our point of view, and it was with a feeling of joyful anticipation that I began reading the article by St. Clair Thompson, entitled "The Principles of Treatment of Tuberculosis," which was presented to the British Congress on Tuberculosis in July, 1901. It seemed by the title that the paper was an extremely timely one, but I confess my disappointment in it. The paper lacks that definiteness which we need in the practical handling of our cases, besides its general tone is decidedly discouraging to all local treatment. It is, however, not without a great deal of value and one will do well to study it carefully for there is much help to be derived from its perusal.

*Read at the meeting of the Middle Section of the American L. R. and O. Society, St. Louis, Feb. 22, 1902.

It is extremely difficult to outline a plan of action in the management of laryngeal tuberculosis, because of the great variety of pathologic conditions which are met with from the incipiency of the affection to its last stages. It seems to me unwise to accept or to condemn any line of treatment unconditionally, for we should bear in mind that each case and each stage of the affection needs individualizing. Local as well as hygienic and general treatment should be applied to each case as the occasion demands. It is never too early to treat these cases, nor is it ever too late to administer to their suffering.

So conservative a man as Schech in Heymann's Handbuch puts it very strongly, that no matter in what extremity the case presents itself, it becomes our duty to apply that which our science and art has taught us. When about ten years ago, Heryng and Krause advocated so strenuously the surgical treatment of this affection, the pendulum rapidly swung to extreme optimism, which even to this day manifests itself in the writing of many men. The reaction was not long in setting in and we find a tendency to return to the old nihilistic, pessimistic views.

It is absolutely necessary for a successful solution of the problem before us that our minds be unbiased by either radicalism or extreme conservatism, and although it is impossible to suggest, in the present state of our knowledge, any positive plan of treatment, we can nevertheless, outline the principles which should guide us in the management of our cases. Unquestionably our best results are obtained in those cases where early diagnoses have been possible. This has been the keynote to the successful management of pulmonary tuberculosis, and more stress should, therefore, be laid upon the study of the very earliest manifestations of the laryngeal affection. It is not our purpose to dwell upon the methods of making an early diagnosis. Three important guides may be found in, 1st, the peculiar anemia, 2nd, the irregular interarytenoid tumefactions, and 3rd, the defective motility of the vocal bands which is quite out of proportion to the visible pathologic changes.

It next becomes necessary to determine the stage of the affection, and to use the most careful judgment in applying the proper treatment for each stage. During the first

stage every effort should be made, first, to improve the nutrition of the parts, by both local and general treatment, and, second, to facilitate the absorption of infiltrations. As the disease advances the character of the infiltration changes, assuming not infrequently the soft papillomatous variety, at other times advancing to a uniform fibroid swelling covered by unbroken mucous membrane, firm to the touch and attended with marked perichondritis. In the soft variety, surgical intervention by curette, forceps and lactic acid is without doubt the most satisfactory plan of treatment. In the firm fibroid infiltration, no remedy can be said to be of more than moderate value. Stimulating the absorbents by local applications of iodin-bearing products offers probably the best prospects.

In the stage of ulceration it is necessary to differentiate between the sluggish, slightly painful ulcer, which is usually large and of greater depth, and the small, numerous, very superficial ulcerations, which develop with great rapidity and which approach the miliary variety. In the former, stimulation by curette and lactic acid, followed by the application of iodoform, will often result in marked improvement and occasionally in cure. In the active superficial variety there is usually much edema, indicating extreme acuity in the affection. The greatest caution should here be exercised in the use of too radical or irritating a remedy. Soothing, quieting, palliative and antiseptic treatment should be instituted. Thorough cleansing, followed by a weak cocain or eucain solution and this in turn by the insufflation of a powder containing morphin, tannic acid and iodoform, after Bosworth, has in my hands frequently retarded the progress of the affection, relieving the acute symptoms to such a degree that the ulcerations have disappeared and the edema has subsided. After reducing the acute symptoms, should there remain ulcerations which take on a chronic, sluggish character, one need not hesitate to adopt more radical surgical measures.

In the cases of extreme ulceration, the treatment outlined by Freudenthal, the most important part of which is the use of his menthol-orthoform emulsion, has been most satisfactory. It does not, however, appeal to me as a curative method, but certainly forms a valuable adjunct to

those cases which may subsequently be treated with a cure in view. It becomes necessary, furthermore, to determine at all times whether a palliative or curative plan of treatment should be adopted, and, more frequently, whether both may not be used. Nicety of judgment will determine also which plan should be followed first, and when it is safe to adopt the other.

I cannot too strongly urge the importance of careful investigation into the patient's general condition. The relative importance of local and constitutional treatment should be constantly borne in mind. There are times when the distress and exertion caused by well-meant local treatment are a severe drain upon the patient's general well-being, and will result in less good than careful attention to rest and constitutional treatment without any local attention whatever. Patients who have no dysphagia, no distress in the larynx, whose only local symptom is hoarseness, and whose general condition indicates a tendency to rapidly progressing disease, had better be advised to give all their attention to constitutional treatment, and I entirely agree with Thompson when he advises for this class of cases rest and sanatorium treatment. Should the patient make decided improvement after more or less treatment of this character, one may then proceed to the relief of local conditions.

This very imperfect outline of the essentials in the treatment of laryngeal tuberculosis bears the stamp of that same indefiniteness which I had hoped to find cleared up by so respected and able an author as Thompson, but which it seems must remain to worry us until such a time when more positive knowledge and more satisfactory methods will redeem such a large proportion of our race from the great white plague.

XVI.

EXTERNAL NASAL NEOPLASM.

By John C. Lester, M. D.,

BROOKLYN.

A careful examination of nasal literature has failed *in toto* to disclose any report or reference to growths starting from, or having their origin in the external structure of the nose, or in the tissues immediately related thereto.

Of course, syphilitic periostitis, perichondritis, etc., are excluded, being local manifestations of the general dyscrasia.

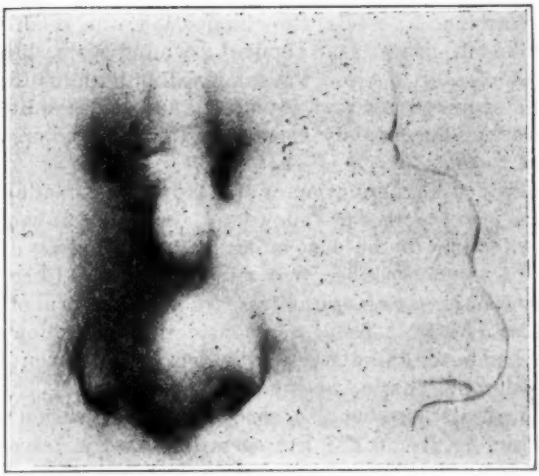
Hence the report of the following case, as far as the writer knows, would seem to be unique in rhinologic literature.

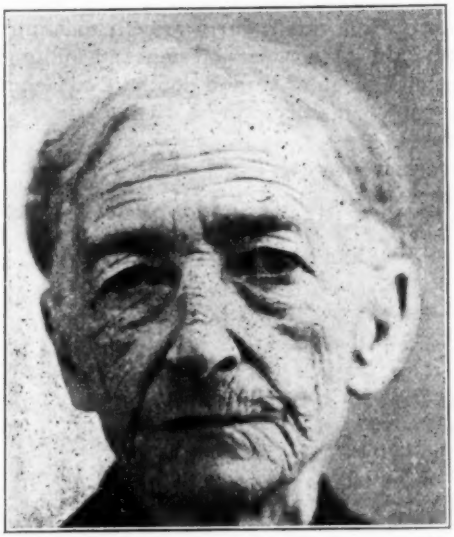
Mrs. C., aged 80, consulted the writer about a growth on the nose, which, according to the patient's statement, had existed for two or three years, and had been looked upon only as a warty excrescence.

For the past six weeks, prior to examination, the growth had increased in size so rapidly as to become a marked deformity and occasioned no little concern on the part of the sufferer.

An examination revealed the presence of a large, cup-shaped symmetrical neoplasm, firmly attached to the middle third of the nose. The drawing made at the time—(the patient positively refusing to be photographed with the tumor in situ)—gives an accurate idea of its broad basal attachment and general appearance, as to size, shape and contour. The history of the case, general appearance of the growth, the deformity, caused the writer to recommend an immediate surgical interference, to which consent was readily given. The physical condition of the patient, age, etc., precluded the use of a general anesthetic, and a local anesthetic was employed.

An elliptical incision was made, entirely encircling the growth and deep enough to include all the tissues down to





the cartilage and lower third of the nasal bone. With the exception of a free hemorrhage necessitating the torsion of a few blood vessels, the enucleation was readily accomplished. The tissue about the wound were dissected up sufficiently to close the same without undue tension. Union occurred by first intention, and the condition of the wound is accurately represented in the accompanying photograph.

Microscopic examination of the growth was made by Dr. Dixon, who reported as follows:

"Referring to the case of Mrs. Clark, 80 years of age, tumor from whose nose was submitted to me, I beg leave to say that it was an epithelial growth in the form of a degenerating wart. There was considerable irritation at the sides and base, and a marked tendency throughout to the formation of 'pearls,' or whirls of epithelium. The surface presented the usual corneous layer. Invasion of the surrounding tissue did not seem to be very active, but there seemed to be a tendency in that direction. While possibly not malignant at the time of removal, the growth had evidently reached the border line."

The points of interest in this case are: The presence of an apparently benign, small, warty growth existing for some years; its sudden increase in size and maligant transformation; its vascularity and depth of attachment; and the subsequent history, there being no return after three years.

179 Schermerhorn St.

XVII.

THYROTOMY FOR LARYNGEAL PAPILLOMATA.*

By Edward F. Parker, M. D.,

CHARLESTON, S. C.

LECTURER ON DISEASES OF THE EYE, EAR AND THROAT, MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

A young lad, J. L., aged 7, was presented for examination in June, 1901, on account of dyspnea and aphonia.

When two and a half years old he had been very ill, and shortly after that time his breathing became more or less difficult and his voice somewhat impaired. These symptoms gradually grew worse and, when first under my observation, the aphonia was complete and the dyspnea considerable.

On account of the extremely nervous condition of the patient and the insuperable irritability of the fauces and throat no satisfactory diagnosis of the laryngeal lesion was made.

The tonsils were much enlarged and the nasopharynx filled with adenoid vegetations, and removal of these under chloroform was advised and accepted.

No improvement in the general condition followed, however, and in three weeks he was brought back to me worse than before. The dyspnea had markedly increased, inspiration was labored, and the heart's action was weak, and with night sweats and cough he had lost strength and flesh.

Laryngoscopy was again difficult for the reasons mentioned and an overhanging epiglottis allowed only imperfect glimpses of the larynx.

A cauliflower-like growth seemed to almost fill the glottis and a diagnosis of multiple papilloma was made.

Removal of the growth seeming impossible by intra-

*Read before the Southern Section of the American Laryngological, Rhinological and Otological Society, Aiken, S. C., Feb. 3, 1902.

laryngeal methods, thyrotomy was chosen as the most advisable route.

On July 7th, a tracheal canula was introduced under chloroform but the bad behavior of the patient induced me to delay further operation until three weeks later, when his health and strength having much improved, and all attempts to remove the whole or any portion of the growth by endolaryngeal methods having failed, a thyrotomy was performed and a large number of small wart-like tumors generally distributed over the cordal, sub-cordal and supra-cordal regions of the larynx were removed with a small wire snare and a sharp ring curette.

After opening the larynx in the usual way a four per cent. solution of cocain was applied and the tissues further bleached and contracted with a 1 to 1,000 solution of adrenalin chlorid. These greatly facilitated the removal of the papillomata. After curetting the debris, the larynx was thoroughly cleansed and a 30 gr. — ʒi solution of nitrate of silver applied to the mucous membrane.

Hemorrhage was slight and interfered but little with the constant inspection of the field of operation, which was well illuminated with a concave mirror.

The skin and thyroid cartilage were adjusted with several silk worm gut sutures, passing at once through both structures so that the necessity for buried stitches of silver wire or cat-gut, as usually recommended, was wisely avoided.

Two weeks later the tracheotomy tube was removed and he was discharged from the infirmary, looking and seeming well and hearty. At this date his mother reports that there has been no recurrence of the growth as far as the symptoms indicate, and that his voice is gradually regaining its normal strength and power.

Extralaryngeal operations were seldom resorted to before the discovery of the art of laryngoscopy, owing to the inability to make a diagnosis in those diseases which demanded such operations. With the introduction of the laryngoscope, thyrotomy was at first more frequent, but as the technique of endolaryngeal work became more perfect and the skill in its performance grew apace, the external incision for the removal of laryngeal growths and foreign obstructions became less frequent.

At the present time most of the text-books suggest thyrotomy only as a last resort on account of the danger to life and the possible permanent injury to the vocal apparatus.

The operation performed in the case detailed above differed but little from that usually described but its success suggests to me a wider application of this method of exposing the laryngeal cavity to view.

Some do not regard the operation is itself as very dangerous, nor liable to be attended with grave complications. Hemorrhage is the chief contraindication.

To avoid this a preliminary tracheotomy may be considered advisable in nearly every case, unless the tumor or foreign body is small and promises to be capable of rapid removal with little hemorrhage.

The tracheal canula allows the lower end of the larynx to be closed with cotton to prevent the blood from passing down the trachea, and the temporary abolition of the respiratory movement of the larynx favors a much more satisfactory exposure of the field of operation as well as a more accurate manipulation of the instruments for the complete removal of the growth and the application of agents to prevent its return.

Children will not often submit to laryngoscopic treatment or even examination, and removal of obstructions in the larynx then becomes very difficult, tedious or impossible.

The amount of risk, though small, in opening into any part of the air passage is sufficient perhaps to deter us from performing an operation like thyrotomy unless life is endangered by dyspnea.

The impairment of vocalization is no greater, however, I judge, than that produced by the often incomplete restoration of the vocal function after endolaryngeal operations.

The shock and danger of a thyrotomy is usually increased and largely accounted for by the impoverished condition of the patient, whose respiration and nutrition have probably been seriously embarrassed for some time. In well nourished children especially, and often in adults presenting unusually intractable throats, a thyrotomy might easily, I believe, be indicated in preference to a

safer but tedious and often incomplete endolaryngeal operation, if we weigh in the balance the possibility, in each case, of a complete, rapid and radical cure.

I cannot agree "that previous or simultaneous tracheotomy, although it has been performed in by far the greater majority of the cases, is not required by the nature of the operation unless there be other conditions necessitating its performance, such as dyspnea."

A tracheal canula may allow us to try more satisfactorily endolaryngeal methods, and is certain to be of great service in any subsequent operation.

Mackenzie suggests that "the operation ought never to be performed for loss of voice alone," and that "the operation should be confined to those cases in which there is danger to life from suffocation or dysphagia, and even then should only be performed after an experienced laryngologist has pronounced it impossible to remove the growth per vias naturales."

Paul Bruns goes further and holds that it should be done only after endolaryngeal removal has been attempted in vain by an experienced laryngologist.

We should certainly have no hesitation in opening the larynx externally, if a radical cure can be facilitated thereby, and if by the endolaryngeal route equally satisfactory results cannot be obtained.

XVIII.

REPORT OF AN UNUSUAL CASE OF NASO-PHARYNGEAL ADENOIDS.

By Carl E. Munger, M. D.

WATERBURY, CONN.

ASSISTANT SURGEON, MANHATTAN EYE AND EAR HOSPITAL; LARYNGOLOGIST AND AURAL SURGEON, WATERBURY HOSPITAL; NEW YORK.

It would not be surprising if we should occasionally meet with a case of nasopharyngeal obstruction which would present conditions entirely at variance with our preconceived ideas. Of the various new growths, tumors, hypertrophies, etc., there are usually named myomata, fibromata, sarcomata, carcinomata, chondromata (2 cases) adenoid vegetations.

Of these obstructions, adenoids are by far the most frequent, and the means of diagnosis are usually so simple and sure that we have little difficulty in determining the nature and amount of the obstruction. That even so familiar and simple a thing as diagnosing nasopharyngeal obstruction is sometimes attended with difficulty, is excedingly well illustrated by the following case which I will briefly report.

S. R., a boy aged 13, was brought to my office with the complaint that he was a mouth-breather, that he was restless and breathed hard at night, that he had an irritating, tickling cough in the morning, and that he did not hear readily.

His facies was indicative of nasopharyngeal obstruction, and his palate was high-arched. A posterior rhinoscopic examination being very difficult on account of the irritability of the throat and the impatience of the boy, digital palpation detected a mass lying in the nasopharynx and filling it to a sufficient extent to markedly impede nasal respiration. The impression given the examining finger was the same that we all expect when we encounter

a mass of adenoid tissue in this region, and the diagnosis was accordingly made of adenoid vegetations in the pharyngeal vault and removal advised.

Several months later the boy was brought in for operation, ether given, and the mass removed by Gradle's adenotome. No unusual force was required and only the usual amount of post-operative hemorrhage ensued. Up to this point I had no intimation that I had not an ordinary case of adenoids to deal with, but upon examining the excised mass I found what appeared to be cartilage covered with soft tissue, some of which was hypertrophied adenoid tissue. The nasal stenosis disappeared and has so remained to the present time.

The specimen was sent to Dr. Harmon Smith, who forwarded the following report:

"The body of the mass is fibro-cartilage, probably originating from an inter-vertebral disc; this is covered in by loose connective tissue containing numerous mucous glands, which are normal. There is a layer of intensely inflamed lymphadenoid tissue covered in by a layer of normal epithelium, eroded in places.

Observations: Recurrence at point of origin possible but not probable. Metastasis will not take place. It is non-malignant."

I report this case, not only on account of what I believe to be its extreme rarity, but also, as showing the necessity for carefulness in diagnosing nasopharyngeal obstruction, and operating for the same.

Examination at the present time shows a whitish line at the seat of wound, transverse to an antero-posterior plane passing through the naso-pharyngeal space, and situated at what I should suppose to be the first intervertebral space.

XIX.

THE FREQUENCY OF ETHMOIDITIS IN SO-CALLED NASAL CATARRH.*

W. B. SHIELDS, M. D.,

ST. LOUIS.

Inflammatory conditions of the ethmoidal region, both acute and chronic, will always be of much interest to the rhinologist and laryngologist, more especially on account of its increased recognition as one of the causes of laryngeal and ocular derangements. It is true that the subject has been gone over thoroughly at different times by many competent observers, nevertheless I shall always regard it as one worthy of discussion, and of great interest as one of causation of so-called nasal catarrh as well as the above mentioned affections.

It is hardly necessary in a paper of this kind to go thoroughly into the anatomy and physiology of the ethmoidal region, as all of us are familiar with both. But I shall touch upon the former, more especially on its deviation from the normal. I can see no reason for separating the anterior and middle ethmoidal cells, as is done in most text books, as in the majority of cases they form one mass of cells with no marked dividing line. In the majority of cases that I have treated for affections in this region, the most frequent deviations from the normal anatomic conditions of the parts have been either a much enlarged tuberculum septi, a high deviation of the septum, or more or less enlargement of the middle turbinate, the latter due, of course, to inflammatory conditions of the parts either on the account of presence of purulent secretion, irritation of pressure, or inhalation of air laden with dust and microorganisms.

The subject of nasal suppuration has been gone into thoroughly by Grunwald, in his excellent work of that

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title. After a most painstaking and thorough investigation, he has come to the conclusion that purulent rhinitis is a disease of great rarity in the adult, and that, while it is more frequently found in children the majority of cases in the latter are due to adenoids preventing drainage of the nasal cavity, the retained secretion being decomposed and forming the so-called purulent rhinitis.

I am of the opinion that it is the lack of free drainage that causes the vast majority of cases of purulent rhinitis in children, for the same process does not occur in the pharynx or fauces, both of which are richly supplied with epithelial cells, and it is the desquamation of these cells from the nasal mucous membrane and their subsequent decomposition which is supposed to be the cause of the purulent secretion. All the cases of purulent discharge from the nose of adults that have come under my observation, except those due to syphilitic lesions, have been found to be due to a diseased condition of some one of the accessory cavities and it has been my experience to find the majority of these cases ethmoidal in origin. This is not the experience of others who have found antral disease more prevalent.

When we take into consideration the frequency of enlargement of the middle turbinate, the large number of ethmoidal cells and the ease with which their openings in the middle and superior meatus can be closed by this enlargement, it looks more than plausible that ethmoiditis can and does occur more frequently than is supposed, both the purulent and catarrhal forms. A purulent ethmoiditis is much more apt to cause an inflammation of the antrum than the reverse, on account of the anatomic arrangement of their respective cavities.

I dare say that my observation on the relative frequency of a diseased condition of the ethmoidal and antral cavities is merely a coincidence, as nearly all observers of large experience are of the opinion that antral diseases are much more frequent.

Within the past eight months I have had several cases come under my observation of retention empyema of the ethmoidal cells, accompanied by headache and elevation of temperature, with a hypertrophied condition of the lower turbinate. These patients had been treated for the

latter condition under the supposition that the headache was due to the hypertrophy. In this class of cases I have found the clinical thermometer of invaluable assistance in making a diagnosis, much more so than trans-illumination. In none of the cases mentioned had the temperature been taken. I think it is not a rare occurrence for this condition to be mistaken for hypertrophy of the lower turbinate, but if the thermometer is used at different times during the day one is very apt to find more or less elevation of temperature. While having the greatest confidence in the opinion of Grunwald, and in the results of his thorough investigation, still I do not agree with him in his radical views on the causation of ozena. He holds that it can nearly always be traced to some local disease in a nasal accessory cavity. I rather agree with Dr. Pynchon that a common-sense explanation of many of these cases can be given in the changed condition of the nasal secretion, on account of the atrophy of the mucous membrane, and lack of evaporation of the same, from which they become thick and present a pabulum for bacterial lodgment and activity. I do think, however, that a number of cases of ozena, especially the unilateral form, are due to purulent inflammation of some one of the nasal cavities and can be greatly improved by local treatment of the diseased area, but that every case of this disease must be a law unto itself.

In conclusion, I will say that I am of the opinion that chronic ethmoiditis, both purulent and catarrhal, is much more common than is generally supposed, and that many cases of post nasal catarrh, hypertrophic rhinitis and ozena are traceable to the irritation of the ethmoidal secretion passing over the parts in the nose and nasopharynx.

303 N. Grand Ave.

XX.

SEPTUM OPERATIONS UNDER COCAIN AND NITROUS OXID GAS.*

By B. S. Booth, M. D.,

TROY, NEW YORK.

It is my intention to describe as briefly as possible the operation for correcting deviation of the septum under the combined use of adrenalin chlorid, cocain and nitrous oxid. Some few months ago I read a paper, similiar to the one I am now reading, before the Section of Rhinology and Laryngology of the New York Academy of Medicine. In describing the technique of this operation at that time, I did not make use of nitrous oxid, but merely used adrenalin chlorid and cocain. In the discussion which followed the reading of my paper, a number of the members present were of the opinion that, considering the amount of pain and shock that must arise in consequence of an operation of this magnitude, a general anesthetic had best be given.

Since operating upon this type of cases under local anesthesia, I have found that there is but one step in the operation that is really painful, and that is the procedure of breaking up the elasticity of the septum, and inasmuch as this part of the operation takes but a few seconds it occurred to me to try a general anesthetic which lasted just long enough to allow me to accomplish this purpose. I selected nitrous oxid as being the safest and most easily given, and for the last six months I have been operating to correct this condition under adrenalin chlorid, cocain and nitrous oxid in the following manner: After irrigating the nose I apply a solution of adrenalin chlorid 1 in 5000 by means of cotton and applicator; after two or three minutes I apply a ten per cent. solution of cocain in the same manner, rubbing it thoroughly into the membrane for

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about ten minutes. By this time the field of operation is completely anesthetized and the membrane is thoroughly blanched. A sharp pointed bistoury is now plunged through the most prominent portion of the convex septum into the opposite nostril, the cutting surface of the knife directed anteriorly; after I have made a sufficiently large opening a blunt pointed curved bistoury is substituted to avoid injuring the tissue of the opposite nostril, and made to cut through the warped cartilaginous septum anteriorly. The bistoury is then reversed and passed through the warped cartilaginous septum posteriorly until the bony septum is reached. If the bony septum is included in the deviation, a small saw is now substituted and with it I divide a small portion of the bony septum. If the deviation is confined to the cartilaginous septum, the bony septum is not included in the antero-posterior incision. The operation has thus far caused but very little pain and comparatively no hemorrhage. I now apply more adrenalin chlorid and cocain as in the beginning.

The next step in the operation will depend upon the extent of the deviation. If the bony septum is included in the deviation giving the nose a curved appearance, the tip of this organ being carried to one side, it is necessary to make two incisions, the first running from the bridge to the floor of the nose, crossing the antero-posterior incision, dividing the cartilaginous septum at the most prominent part of its convexity. The second incision is made to divide that portion of the septum lying between the upper part of the antero-posterior incision and the bridge of the nose just anterior to the bony septum. If there is no deformity of the external nose this last incision is unnecessary. These incisions are made with a sharp pointed bistoury. Up to this point in the operation I experience no difficulty. The patient as a rule will sit still and seldom complains of pain, and the absence of blood gives him courage. I now arrange the operating chair so as to place my patient in a semi-recumbent position and proceed to administer nitrous oxid in the usual manner in vogue by dentists. My apparatus consists of an inhaler, a bag holding five gallons and a cylinder which contains nitrous oxid. I find that five gallons are usually sufficient to produce complete anesthesia, especially if care is taken

to eliminate any air from the patient. It is wise to place the inhaler in position, see that it fits the face snugly, and instruct the patient how he is to inhale when the gas is turned on. This will give him confidence. When this is accomplished turn on the nitrous oxid. I find that it takes from 15 to 20 deep inhalations to produce complete narcosis. When we are satisfied that this has taken place, which will be when our patient begins to snore, the inhaler is quickly laid aside. The septum is now grasped between the blades of a pair of Adams' forceps and by a rotary movement the resiliency is carefully broken up, using care to loosen it from the floor of the nose; the forceps are now removed and the index finger is introduced into the nostril containing the convexity and the septum is pushed into the opposite nostril. By this time the patient has regained consciousness. I now introduce previously selected splints into the nostrils to hold the septum in the median line. The patient is allowed to rest in my office a few minutes, after which he is ready to go home. The subsequent treatment is the same as in all similar operations. This seems to me to be an improvement over using either general or local anesthesia separately. It certainly is more practical, humane and less dangerous.

XXI.

PHARYNGO-MYCOSIS LEPTOTHRICA OR HYPER-KERATOSIS PHARYNGIS.

By Joseph C. Beck, M. D.,

CHICAGO.

This affection, until Siebenmann of Basel, in 1894, described the true pathologic condition, was known as pharyngeal mycosis leptothrica. From that date cases are reported under the old as well as the new nomenclature.

The history of this affection dates back to 1873, when B. Frankel first described the condition as mycosis tonsillaris benigna. Th. Heryng, of Warsaw, stated that up to 1883 six cases had been reported. Eugene Frankel, of Hamburg, reported about that time a case of mycosis of the tongue. This was examined microscopically by Prof. Sadebeck, who found a bacillus that had the appearance of bushes, and classed it as the bacillus fasciculatus and pronounced it the specific organism of this affection. Dr. L. Beyers reported two cases, and Gubiner one. Heryng reported six cases; one being of special interest, having often been reported in literature, I will simply allude to it briefly because since then the specific organism was thought to have been found, i. e., the leptothrix buccalis. The patient was a physician, Dembici, who had been treated for a long time by Prof. Biesiadecki, of Krakow, who examined removed masses, by the iodin reaction, which was characteristic and, therefore, spoke of an amyloid degeneration of the pharynx. Later the patient consulted Prof. Stoerk, of Vienna, who also removed tissue with masses and found calcareous degeneration with mucin and cholesterin crystals, and he diagnosticated the case as calcareous degeneration of the pharynx. The patient did not improve. On the contrary, the condition continually recurred and increased. Finally he consulted Prof. Klebs, who at that time was at Marienbad, where the patient

was sent for his health. He examined portions removed and found the leptothrix buccalis, and published his original article, "Uber eine Mycose der Mundhöhle." The patient then gave up treatment.

Being a student in botany and the lower types of organic life, he was familiar with the fact (as it had been explained to him by Prof. Klebs) that the causative factor of his ailment was an organism; that tobacco prevented the growth of he was willing to try its application on himself. He therefore used strong, heavy cigars, smoking constantly for two months, after which time the condition entirely disappeared.

From that time on, until Siebenmann described the true pathologic condition, many cases have been reported with slight modifications in their description; for instance, Jacobsohn (Volkmann's Klinische Vortrage, 1887), as algosis faucium leptothrica; Jonathan Wright, in the New York Medical Journal, 1895, I, p. XII, approaches very closely to its true description, but claim the specific cause to be the leptothrix.

DEFINITION.

A development of small, yellowish-white, projecting, pointed masses, the size varying from that of a pencil point to that of a needle point; sometimes single, more often conglomerated, forming small groups, difficult of detachment, in Waldeyer's ring, which includes the velum and uvula, anterior and posterior pillars of the fauces, the palato-glossal folds, the base of the tongue with its lingual tonsil, glosso-epiglottidian folds, the faucial tonsils posterior wall of the pharynx and post-nasal space.

PREDISPOSING AND EXCITING CAUSES.

(A) Predisposing causes are:

1. Inflammatory conditions in the lymphoid tissue about Waldeyer's ring.

2. Lowered vitality in anemic subjects, slight gastric and intestinal disturbances.

3. Sex. Female neurotics are said to be more prone to its development. I have found from cases collected 56 women and 39 men, 96 not classified.

4. Age. It is most prevalent in the young adult. Cases

range from two years to 76 years; the greatest number between the ages of 18 and 25.

5. The hygenic surroundings play a role, for when a patient is ordered a change of air, conditions have often been benefited or cured.

6. Tobacco. Men who smoke are less often afflicted, and the fact that women do not smoke has been given as a probable cause.

7. Social Condition. The better class of people are more apt to have it. Colored race not exempt.

8. Dental caries and acidity of saliva.

B. Specific Cause. None is known. The leptothrix buccalis, which has long been held to be the exciting cause, is now classed by the late observers as coincident, because it is constantly present in every buccal cavity where decomposition is going on, i. e., about bad teeth. For some time it was thought that the leptothrix was responsible for dental caries, but this has been disproven by Miller. Hornification of the epithelium is said to be due to the loss of vitality of the cells, within a lymph follicle. Prevost says that leptothrix, oidium albicans and aspergillus fumigatus are all concerned as causative factors of this affection.

COURSE.

There appear first yellowish nodules under the mucous membrane, which open up and show the characteristic white masses. These project and remain attached firmly for quite a while, when they soften up and drop off and others reappear. Their course is indefinite. Some last months, disappearing and recurring again (but rarely) while others last for years continually. Others again last for a shorter period when they disappear and do not recur. Irritation and acute inflammation about the throat increase their development.

PATHOLOGY.

(a) A cornification of the epithelium of the lymphoid tissue in the pharynx.

(b) Leptothrix buccalis.

Siebenmann states that the reason this cornification takes place in the pharynx rather than in the posterior nares or

in the larynx is because the lining membrane is made up of flattened epithelium, which hornifies more easily than the cylindrical which lines the post-nasal space, the larynx, etc.

Microscopic examination of a portion of tissue removed in which the change took place, shows a cyst wall in which there are a large number of epithelial cells, some looking like the cells of hair (homogeneous). On top of this broken cyst wall are found the leptothrix and other bacteria. But little inflammatory condition is present. The leptothrix plays here the part it does anywhere else where decomposition goes on, namely, its lodgment after the condition has developed. So we find it about carious teeth, old carcinomatous masses, leukoplakia pharyngis, in plugs of follicular tonsillitis, ozena, etc. There are several varieties of the leptothrix found. The specimens show two distinct varieties:

1. Large, bushy varieties in which the divisions of the chain are not distinctly seen. 2. The more isolated in which the space is well marked.

The leptothrix buccalis is a vegetable fungus arranged and growing in threads of different lengths, sometimes appearing in bundles, 0.7-1.5 in thickness, colorless; it develops rapidly in blood serum. In an acid medium it gives the characteristic starch reaction with Lugols solution.

SYMPTOMATOLOGY.

The patients do not, as a rule, complain very much; a sensation of scratching, some difficulty in swallowing, a kind of stiffness in the throat, easy tiring in speaking; sometimes pain running along the side of the neck. When large masses are located about the lingual tonsil, hawking has been described. As a rule, discovery is accidental, either by the patient or the physician at a casual examination. Its persistency and its resemblance to grave conditions in the throat are what usually bring these individuals to the physician's and later to the specialist's notice.

DIAGNOSIS.

The principal characteristics are:

1. Small yellowish-white excresences, at first hard to remove.
2. Confined to Waldeyer's ring.
3. Cornified epithelium with leptothrix is the makeup of the masses when examined microscopically.
4. Absence of marked local inflammatory conditions or grave general disturbance.

The disease must be differentiated from.

1. Diphtheria.
2. Acute lacunar tonsillitis.
3. Chronic lacunar tonsillitis.
4. True mycosis pharyngis leptothrica.
5. Herpes angina.
6. Plaque mucose.
7. Tuberculosis.
8. Thrush and soor.
9. Pemphigus.

In diphtheria the grave constitutional symptoms with the membranous appearance in the throat with violent inflammation, and above all, the microscopic and culture examination will clear the diagnosis.

In acute lacunar tonsillitis we have marked constitutional symptoms, marked inflammation in the throat, confined to the tonsils, and in course of a few days the condition disappears.

In chronic lacunar tonsillitis we can express the plugs easily. They have a fetid odor, and as a rule, when removed, do not recur. Moreover, they show leptothrix and cholesterin.

In true mycosis pharyngis leptothrica we may make a mistake microscopically, but only in finding the leptothrix; here it is much more abundant. There are constitutional symptoms, marked local inflammation and edema. The process extends outside Waldeyer's ring, so it may travel down to the larynx, bronchi and lungs to the esophagus and into the naso-pharynx and nose.

In herpes angina, the lesions are minute blisters, as a rule confined to the arch of the soft palate and uvula.

In plaque mycose, history of syphilis and other secondary symptoms.

In tuberculosis, secondary and grave tubercular symptoms are usually present. Microscopically, tubercle bacilli are present.

In thrush and soor, the microscopic examination is significant. The location is usually in the buccal cavity; the age of the patient is a matter of diagnostic importance.

In pemphigus, there is usually the same condition present about the skin. (Jonathan Wright describes one case.)

PROGNOSIS.

The prognosis is entirely favorable. It seems that if nothing is done the patient will get along better than if treated, and yet it has been observed that these patients are, as a rule, very much concerned about their condition and oftentimes depressed. It would be unwise not to do something and doing something may influence the condition at times. Many authors report good results from treatment.

TREATMENT.

In tabulating the cases separately I mention what some authors have used and considered the best treatment, and in conclusion I give the treatment I used in my cases.

Some of the remedies and methods of treatment used by the above are as follows:

1. Cautery (galvanic).
2. Tonsillectomy.
3. Curettement of masses.
4. Chromic acid.
5. Trichloracetic acid.
6. Carbolic acid, 95 per cent.
7. Nitrate of silver, 90 grains to ℥i.
8. Swab with saturated alcoholic solution of salicylic acid.
9. Gargles of
   - *a*. Peroxid of hydrogen.
   - *b*. Permanganate of potash.
   - *c*. Bichlorid of mercury.
   - *d*. Formalin.
   - *e*. Listerine.
   - *f*. Alcohol.
10. Pyoktanin painted over surfaces.
11. Sodium sulphate, 5 per cent. solution.
12. Infusion of tobacco, evenly applied.

AUTHOR.	No. cases	SEX.	AGE.	TREATMENT.
Frankel, B.	?			
Klebs, E.	1	Male		Removal by curette, forceps, etc., and local applications of medicine.
Baginski	1			
Frankel, Eugene	1			
Bayers, L.	2			
Gumbiner	1			
Heryng	7			
Hemenway	1	Female		Cautery and excision of tonsils.
Milbury, F. S.	1	Female		
Price-Brown	3	2m. 1f	19, 40, 50.	1 larynx involved.
Wright, Jonathan	4	Female	3 young, 1 middle age.	
Ingals, E. Fletcher	14	7m, 6f	41, 34, 17, 63, 14, 16, 32, 23, 30, 27, 22, 28.	Cautery recommended.
Bean, C. E.	1	Female	26.	Cautery.
Evans, T. C.		Not	Classified.	
Gray	1	Male	32.	Larynx involved.
Campbell, J. T.	1	Female & sister (?)		
Carpenter, Julia W	2	1m. 1f		
Foster, H	2	Female		
Downies, W.	7	3m, 4f		
Gevaert	2			
Toeplitz, Max	3	2m, 1f		
Bach	2			
Kenault	1			
Bosworth	1			
Donnellon	1	Male		
Masse	1			
Kelly, A. Brown	10	5m, 5f	18, 29, 23, 22, 40, 30, 50, 33, 26.	
Sieberman	6	Female	8, 25.	
Chiari, O.	3			
Decker and Siefert	1	Male	50.	
Krasnobayeff, T. P.	1		1 yr, 5 mo. (Youngest subject.)	
Thorue, Atwood	1	Female		
Dubrer	1	Boy	8.	
Puterman	1	Girl	20.	
Kayser	3			
Michelson	5			
Jurasz	3			
Gerber	2			
Wroblewski	18	10f, 8m		
Seifert	10	7f, 3m	10, 21, 22, 23, 26, 19, 52, 25, 45, 30.	
Oltuzewski	1	Female	16.	
Schieffer	1			
Taber	1			
Gorris	3	1f, 2m		
Newcomb	1			
Krieg	37			
Mettenheimer	2			
Michelson (2d Series)	14			
Jacobson	3	2 Girls 1 Boy	14, 16 and 17 years old.	
Coulter, J. Homer	1	Female		

Almost all used the cautery more or less in combinat with some treatment as stated below.

Case I. Miss S., 21 years old, a student, noticed on looking into her throat some white spots, giving her no trouble whatever. She only feared the condition might be serious. Consulted Dr. Emil Beck, who diagnosed the condition as follicular masses (degeneration plugs) in tonsils; pressed them out and removed them with forceps at intervals of two or three days. Patient was referred to me about the third week of treatment. The accompanying figure will illustrate the appearance of her throat. White spots of various size were seated over tonsillar surface,

and anterior and posterior pillars of the fauces and in the glosso-pharyngeal fold. The crypts of the tonsils were filled at some places with these white masses, which were very tenacious and had to be removed by scoop or forceps. Some of these particles stuck out in a pointed way, and upon attempt to remove them by means of forceps would hold tightly but finally come out without any bleeding. Especially in the glosso-pharyngeal fold were these particles firmly adherent and it was almost impossible to remove them.

The patient was of a nervous temperament and once after a treatment had a typical hysterical attack. The teeth of the patient were bad. I sent her to a dentist with my diagnosis, which had been made by aid of the microscope, to learn whether there were any cavities, etc., but his answer was negative, all cavities having been filled. The patient had periodically developed a herpes labialis and told me that as a rule this followed some indiscretion in diet. Slight anemia was present. The treatment in this case was local, hygienic and general; her diet was modified and gastro-intestinal disturbances were corrected; an iron tonic prescribed; hydrogen peroxid as a mouth wash and gargle prescribed, with alcohol and listerine equal parts. The local treatment consisted of everything, almost, that had been recommended: curetting off these white masses and swabbing with bichlorid of mercury, formalin, the use of chromic acid, silver nitrate in strong solution. The use of the actual cautery and saturated alcoholic solution of salicylic acid was unavailing and as there was nothing that seemed to influence it in the least, I took the advice of the men who advocate leaving the condition alone, and accepted the suggestion of sending patient away for a trip, and a change of scene; on the return of the patient, the mycosis had disappeared. After three months the patient reported again with no recurrence.

Case II. Miss G., ten years old; parents noticed that the child became hoarse and hawked at times; on looking into the throat, they saw some white spots which they tried to swab out but could not. Consulting a general practitioner, he advised gargles, but the spots did not disappear. Patient was brought to me August 14th—a well

nourished child, with a hoarse voice; teeth in bad condition; an offensive odor from the mouth, the tonsils slightly enlarged, and on their surfaces as well as from the crypts white masses protruded. At the base of the tongue in the region of the epiglottis, similar masses are seen. On the posterior wall of the pharynx there were two or three distinct spots, yellowish white in appearance, apparently under an epithelial layer.

I referred the patient to a dentist, who treated the teeth and to my surprise found that, two weeks after, the patient was cured of the hawking and the spots had entirely disappeared. For local treatment, a simple gargle of borolyptol was used.

Case III. Miss von M., Assistant Professor, University of Chicago, 40 years of age, noticed some white spots in her throat, and on the dorsum of the tongue. The latter are giving her trouble, such as a burning, scratching feeling. Patient had been operated upon for antral disease, and wears a tube through the alveolar process, also has two plates of artificial denture. The patient is highly neurotic; she had her ovaries removed early in life, and several times has been afflicted with hysterical aphonia. The mycotic masses were situated principally on the soft palate, on the pillars and tonsils; the dorsum of the tongue in the middle part presents a distinct white mass very firmly attached. Attention was given to the cleansing of the antrum, nose and throat. Condition improved, but now, almost six months since she was first observed, the white spots are still present to a certain extent. Actual cautery of the tongue improved the condition.

Case IV. Miss M., 22 years old, clerk, for several months observed a disagreeable scratching in her throat and also observed white spots on both sides of her throat. Teeth in a very bad condition. The whole oropharynx covered with whitish masses of mycosis, firmly adherent and giving to the finger the sensation of bristles. A saturated solution of salicylic acid was applied thoroughly to all the surfaces of the throat. Patient did not return, but I have heard that the condition entirely disappeared after attention to the teeth.

Case V. Mrs. N., 28 years old, colored, had for the past year a sensation of scratching in the throat, some

difficulty in swallowing, and fatigue in speaking and at times a very offensive odor from the mouth. The oro-pharynx shows scattered yellowish white masses, on the tonsils particularly and extending deep into their crypts. Some are very firmly attached, while others come off quite easily with a swab. Post-nasally, a few white spots are seen and, along the lingual tonsil, large masses of the same character can be made out. I advised the patient to smoke four strong, clear Havana cigars daily for six weeks and made local application of extract of tobacco to the parts; with the result of improvement as far as the symptoms were concerned and the odor disappeared. The masses were getting softer and fewer in number, but owing to the inability of the patient to remain in Chicago, I was compelled to leave off observation.

Case VI. Miss G., 15 years old, has ozena fœtida. Had many masses in her throat at one time, but they disappeared and now only one is seen on the left posterior pillar. It has the appearance of a cyst wall, with a whitish mass protruding through it. On removal of these masses, which are firmly held, a small cavity is seen.

Case VII. Miss P., about 20 years old, atrophic rhinitis of the inferior turbinated body, marked hypertrophy of the right middle turbinated, with some pus coming from the upper nasal region. Removal of the anterior portion of the middle turbinated body shows it to be subjected to cystic degeneration and a fluid simulating pus exuding from it. On her right anterior pillar is found a white spot made up of mycotic mass, firmly adherent, but without inflammatory signs.

Resume: All cases showed microscopically the leptothrix buccalis. Two cases showed considerable hornified epithelium and a number of other micro-organisms. All the cases appeared in females. Five had bad teeth, and two suppurative and atrophic rhinitis, and on treatment of the same showed marked improvement. Local treatment, including operative treatment, had but little influence on the condition. If anything, it aggravated it.

The following two cases I received from Drs. Ballenger and Robertson, and take great pleasure in reporting the same in connection with mine.

DR. W. L. BALLENGER'S CASE OF TONSILLAR MYCOSIS.

Miss P., age 23 years, student of vocal music, called upon me January 23, 1901, complaining of a tonsillar affection. She stated that she had just returned from Vienna where she had been engaged in the study of vocal music during the past year. She called upon B. Frankel on account of a throat trouble that seemed to interfere with her progress in singing. He pronounced it tonsillar mycosis.

Upon examination several tufts of ivory white material were seen at the mouths of the crypts of the tonsils. They were tough and firmly adherent and only removable by including the epithelium of the tonsil. They seemed to be composed of rods or pillars of material, as they were in several places pointed or conical in arrangement, as shown in the colored illustration.

The treatment consisted of cautery dissection of two masses of mycotic tissue at each sitting, under cocain anesthesia. In all 15 cautery dissections were made, as some of the dissections had to be repeated in order to eradicate the growth.

The patient was last seen September 20, and there had been no return of the growth. The voice, however, had not regained power and endurance. It should be stated that the tonsils are hyperplastic and should be removed. This procedure would in all probability do much in restoring normal physiologic activity to the vocal apparatus.

DR. ROBERTSON'S CASE OF PHARYNGEAL MYCOSIS.

Miss M. H., age 20, had always been healthy save for an attack of diphtheria 4 years ago. During the past summer while at a summer resort enjoying the best of health, upon examining her throat with a mirror on account of a stiff sore feeling, she noticed a small white speck on the left tonsil near the top of the gland. She thought it perhaps a particle of cracker or food of some kind and attempted its removal, when she found it immovable. She consulted her family physician who curetted it but without success. She was given gargles of peroxid and astringents and later antiseptics, but the spot persisted and soon was seen to be in company with

other spots of a similar appearance. This was the condition present when first I examined her. The accompanying cut shows about the picture presented. The small elevations which were shiny dark gray in appearance sprang from the crypts of each tonsil. Some of these little projections 4-6 mm. in length and 1-2 in diameter were removed and given to the pathologist. There were other spots of white accumulations, uneven in outline and size, which were more easily removed and not so hard as the conical or club-shaped prominences, and they were also sent to the pathologist. An operation for removal of each tonsil was done and the surfaces painted with 40 per cent. nitrate of silver solution. The remaining places on the pharyngeal wall, glosso-palatal folds and base of tongue were curetted and painted with various solutions, without avail. Actual cautery was resorted to and by the destruction of the growths and the mucous membrane beneath, they have gradually disappeared. Recurrence has been occasional but at the present time, a month after the first visit, the left side of the pharynx is clear and only a few masses remain on the base of the tongue well down toward the glosso-epiglottic fold. The report of the pathologist was that the club-shaped masses were similar to ichthyosis of the skin, being horny epithelium piled up on a basement epithelium and filled with very many varieties of bacteria.

The softer masses, however, give evidence of leptothrix buccalis together with great quantities of bacteria of other kinds.

The patient has become thinner, but by alterative tonic treatment is as present as well as she ever has been. She is cutting two third molar teeth which have caused her no pain or soreness. She has no bad teeth, stomach is in good shape, and thus far no cause has been discovered.

Of all the remedies used, including silver nitrate, chromic acid, salicylic acid in alcohol, none seemed of avail till the galvano-cautery was used. Since this has been used no spot once burned has had any recurrence. The tissues were not burned deeply—only through the mucous membrane. There was no pain or soreness afterward, and the patient is in a fair way to become entirely cured within a month.

The specimen containing leptothrix buccalis was taken so as to get down as deep into the membrane as possible.

In conclusion, I would like to state that this condition is much more prevalent than we would assume from the literature or from the text books. There are many cases reported off hand; for instance, an author will report one or two cases specifically and then state that he has had about thirty or forty cases. There certainly are many cases diagnosticated and treated without being reported at all, and many cases are treated by the general practitioner for follicular tonsillitis, etc.

In regard to the treatment, the common consensus of opinion favors the cautery treatment, as that has given the best results. A most striking feature about the development of this affection is that it is generally found in connection with some process of decomposition, as ozena, dental caries or the coated tongue.

Since the completion of this article the case of a boy seven years old, whose throat is filled with mycotic masses, came under my observation at the St. Joseph Hospital. I mention this because there are two interesting points in connection with it. He has a foul odor from the mouth, and on closer examination I find a chronic otitis media suppurativa, without much discharge, but with cholesteatomatous masses and an odor very similar to that from the mouth. By cocainizing the pharynx and by means of Michel's mirror, I was able to see the openings of the tubes with mucus about them. Siebenmann speaks of the leptothrix developing about the region of cholestatomatous ears, and I would suggest that the development of this case of pharyngo-mycosis may be due to this affection.

The second interesting point is the history of the mother and uncle of the boy, who were afflicted with the same condition in the throat for a longer period. The mother states that occasionally her throat is entirely clear, the condition again recurring; while her brother has never been free of this affection.

Again, I would make a plea for the study of the pathology of this affection, i. e., changes in the follicles of Waldeyer's ring due to some process of decomposition, and where the same cannot be localized, perhaps may be in the gastro-intestinal tract.

The true leptothrix mycosis is a condition much rarer and of graver prognosis. There are a few cases reported by Brown-Kelly in the Glasgow Medical Journal, 1896. In those cases the lepthothrix buccalis is the etiologic factor and not a secondary development, as in the case of the condition under discussion.

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XXII.

A GENERAL CONSIDERATION OF HYPERPLASIA OF THE LINGUAL TONSILS.*

By Seymour Oppenheimer, M. D.,

NEW YORK.

LARYNGOLOGIST AND OTOLOGIST TO GOUVERNEUR HOSPITAL; LARYNGOLOGIST TO THE UNIVERSITY-BELLEVUE COLLEGE DISPENSARY; INSTRUCTOR IN LARYNGOLOGY AT THE NEW YORK UNIVERSITY-BELLEVUE COLLEGE; FELLOW OF THE AMERICAN LARYNGOLOGICAL AND OTOLOGICAL SOCIETY, ETC., ETC.

While the lingual tonsil is a part of Waldeyer's lymphoid ring and partakes in many respects of the anatomic features of the faucial and pharyngeal tonsils, it differs from these structures somewhat as regards its histologic identity, its pathologic changes and especially its growth and developmental features.

Situated as it is, in the glosso-epiglottic fossa and in intimate relation with the base of the tongue and the superior opening of the vocal apparatus, the glands constituting the fourth tonsil influence, to a marked extent, the integrity of this region. Placed upon a base of lingual muscle fibres and separated from them by a layer of connective tissue, the individual glands roughly grouped to each side of the median glosso-epiglottic ligament produce separate aggregations of tissue which, on examination, will show very clearly the presence of two tonsils instead of one.

The follicular glands are irregular as to distribution and number, varying, as shown by Ostman, from 34 to 102, with an average of sixty-six, while the size varies from one-half to six millimeters. Upon the number and size of the glands depends, to a certain extent, the individual susceptibility to future hyperplasia, it being my experience that

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the greater the number of individual lymphoid groups in a given case, the earlier and more prominent will symptoms referable to this region become evident. It is essentially a lymphoid area, and through the superficial and deep lymphatic channels the parts are drained to the deep lingual glands, where further communication is established with the cervical lymphatics in immediate proximity to the bifurcation of the common carotid artery. The superficial glands which are recognized as the lingual tonsil vary in grouping in almost every individual; in one case they are evenly distributed along both sides of the median line, while in others the glands seem aggregated in a central group, hyperplastic changes taking place in the latter class, being the one in which the symptoms are prominently connected with the epiglottis. A third class, in which the glands are sparse and irregularly scattered, with a fibrous tissue interval, calls for little comment, as it is not subject to the same extent of morbid changes as the former groups.

Normally the tonsil is spread over the surface and does not project outward as do the faucial tonsils, the glands being less elevated than those comprising the other tonsils. This is shown by McBride when he states that the glandular tissue of the lingual tonsil is normally present, but not in such quantity as to produce a visible prominence. Rarely in the healthy throat have I found the thickness of the lingual pad to exceed one quarter of an inch and when the glands project above the irregular flat surface upon which they are spread, one is justified, in the presence of symptoms, in considering the condition pathologic. To be considered normal, there should be a clear space between the tongue and epiglottis. In the stained section it is frequently possible to see the fasciculi from the underlying muscle penetrating into the gland and interlacing between the crypts.

Unlike the faucial tonsil, the lymph masses are not bound into a single mass, but even when hypertrophied, remain more or less isolated, it being always possible to recognize a definite interspace between the individual glands. In addition to the secreting glands, there are from four to sixteen aggregations of true lymphoid tissue arranged in a somewhat peculiar position around the fol-

licles. It is rare to find a greater number than sixteen, but in a young girl I found twenty-three and, while she presented no symptoms, there was an unusual development of lymph tissue generally. The fibrous tissue underlying the submucous layer more or less binds the entire mass together and partially encapaulates it, while the surface is covered with an extension of the pharyngeal mucous membrane. The diverticulum of its epithelial layer, however, is single instead of compound as in the other tonsils. The mucous glands which are prominently identified with hyperplastic changes, form in part the basis of the lymph body, each gland developing a bulbous expansion enveloped by lymph cells which perform their function as a separate secreting gland.

Embryologically considered, it is of importance to appreciate that, at this point of the faucial isthmus, there takes place a conjunction of the epiblast and hypoblast, and the development of lymphoid tissue forming the tonsillar system ensues. The presence of mucous and albuminous glands comprising an essential bulk of the lingual tonsils also distinguishes this tissue from that of the faucial region, where they are but occasionally found, and from the pharyngeal tonsil, where they are entirely absent, and, while the lingual crypts are usually lined with epithelium identical with that of the other tonsils, it is at times possible, as pointed out by Wingrave, to find in some a lining of ciliated columnar cells.

While the lingual tonsil is developed at an early age, it has been accepted by many, as a matter of routine, that visible signs of its presence do not become evident until late in childhood. This I believe to be an error arising, no doubt, from lack of study of the pre-epiglottic space and in the general absence from symptoms in early life. In the child of ten or twelve years, the glandular elements can be readily seen, and it is not uncommon to find the tonsil enlarged to some extent in at least twenty or thirty per cent. of children. The age factor does, however, exert a distinct influence in the development of hyperplasia, and in this exists another qualitative difference between the lingual and faucial tonsils. Hyperplasia is not unknown at an early age. The case of Hickman's, of a child dying of asphyxia at birth, in which it was shown,

by autopsy, that death was caused by an enormous hypertrophy of the lingual glands, while the only case of its kind reported, certainly lends its support to this argument; another case was seen by McBride in a child of seven years.

Slight hypertrophy is rarely present before the fifth or sixth year, and marked hyperplasia before the twentieth year, while the majority of cases which present symptoms referable to the lingual tonsil are usually observed during middle life. In my own records, eighty per cent. of the cases in which hyperplasia was the cause of the symptoms for which the patient sought relief were between thirty and forty years of age, and in all there was strong evidence that the enlargement had existed for a considerable time before symptoms had developed. In a patient of sixty-four years, in whom movements of the epiglottis were hampered by the fibrous and, to a less extent, glandular enlargement, an appreciable growth at the base of the tongue had been noticed by the patient for at least thirty years. In a woman, eighty-four years of age, now under my care, there is well-marked hypertrophy with constant irritative cough, no other alterations being present that can be found to produce it. From a pathologic aspect, one of the strongest points in favor of its distinct identity is that hyperplasia or its constituent elements belong essentially to a time when both the faucial and pharyngeal tonsillar bodies have undergone retrograde metamorphosis, atrophy of these latter lymphoid masses, as a rule, being well under way at middle life, while the lingual tonsil is at its stage of fullest development. It is the exception, rather than the rule, to observe hyperplasia of the lingual tonsil at this age, with a corresponding condition of the faucial tonsils.

Clark believes hypertrophy to be most frequent between the age of eighteen and thirty-five years, while Bosworth's youngest case was a female of eighteen years and Lennox-Browne found it most frequent when associated with varix, between the twenty-fifth and forty-fifth year. Undoubtedly hyperplastic changes without associated venous alterations are initiated in a certain class of cases during the adolescent period when as evidenced in other conditions, lymphoid development is most essen-

tial, the symptoms not becoming manifest until years later, when forces both direct and indirect are then playing an etiologic part. One can hardly agree with Escat that the lingual tonsil in the child is not only fully developed, but also presents its period of maximum vitality and passes into a condition of atrophic change at puberty, to become at the age of twenty years so completely atrophied, as to be practically absent. Daily experience promptly refutes this erroneous view and while I believe that the lingual tonsil is developed and in certain individuals undergoes hyperplastic changes at an earlier age than is commonly considered, yet with the hypothesis of Escat accepted, one should not find the disease present after puberty except in exceptional cases. Bickel correctly interprets the essential facts when he states that the fourth tonsil is less completely developed in childhood than are the faucial or pharyngeal tonsils.

While the majority of observers are inclined to the opinion that hypertrophy occurs more often in females than males, there is a constantly increasing number of reported cases in which the sex is evenly divided. In my own cases sex exerted no influence in regard to the development of hyperplasia but the female presented more marked and varied symptoms than did the males. Hall expresses this forcibly when he says that at all events women more frequently complain of it than men. Roy, Scheppgrell (15 cases, 10 of which were females), McBride and others regard it as being most common in women, while Ellett, Seifert (106 cases, 58 men and 48 women) and Browne with 69 per cent. males and 31 per cent. females, demonstrate that they have seen more cases in males, or that the cases were evenly divided. Undoubtedly judging by the symptoms, it is more common to observe the condition in women, but if one will examine a number complaining of naso-pharyngeal lesions or even a series in which no symptoms referable to the upper respiratory tract are present, it will be surprising to find that the sexes are fairly divided or if there is appreciable difference the males will predominate. Escat explains this by saying that although hypertrophy is equally frequent in both sexes, the neuropathic reaction is more often expressed in females, thus giving rise to the erroneous impression that this sex is most frequently affected.

The factors concerned in the production of lingual hypertrophy do not differ in many respects from those acting on the faucial tonsils. The relation of gastro-intestinal disturbances is well defined in many cases, in 74 which I have seen with especial reference to this etiologic factor, fully 60 per cent. suffered from some form of dyspepsia often accompanied with fermentative changes. And in at least 35 per cent. of these a distinct relationship existed, not differing excepting in degree from the following case which is typical in this respect.

Mrs. A., age 35 years. Except a moderate hyperplasia of the lingual tonsil and delayed gastric digestion due to motor insufficiency, she is otherwise healthy. There are no symptoms from the hyperplasia except during an attack of indigestion which occurs about every six weeks, when the lingual tonsil increases to a sufficient extent to interfere with epiglottic movements and gives rise to a sharp, irritative cough. This disappears as soon as the diet is restricted and measures directed to the stomach trouble are enforced. Since reducing the glands with the cautery an attack of indigestion is no longer attended with throat symptoms.

Constipation as allied to gastro-intestional disorders plays a prominent part in the etiology but not as much in hyperplasia as in the associated condition of varix, this being present in individuals with disordered hepatic functions in which sluggish bowel movements are concomitant. In 67 per cent. of Brown's cases of varix with and without hyperplasia, there was constipation, while in my own cases, this factor played little or no part in the production of hyperplastic changes, but when the veins were enlarged it was an active contributing factor. In almost any chronic visceral affection there exists an undoubted tendency to varix, usually associated with some degree of glandular hyperplasia. I have recently examined ten patients with hepatic cirrhosis and chronic intestional disorders in which there was more or less obstruction of the venous system and in all there was lingual varix. In but four of these cases were any symptoms pertaining to this local condition manifested.

The rheumatic diathesis I believe plays an important role in aggravating the symptoms when hyperplasia has

developed. Rheumatism per se apparently exerts no influence in the development of the hyperplasia and it is doubtful if the tonsil is involved as a prodromal symptom of an attack of acute rheumatism, as sometimes occurs in the faucial tonsils. With the predominence of varix, lithæmic and rheumatic diatheses do influence to a considerable extent the local lesion. In a man of fifty years, with mild rheumatic attacks coming on at indefinite times and of several years standing, enlargement of the superficial veins of the preepiglottic space was a constant accompaniment. The vascularity of the parts became so augmented as to cause considerable venous oozing; the condition subsiding but the veins still remaining more tortuous than usual, as soon as the brunt of the general attack had passed. A few cases will present strong evidence of the lithæmic diathesis localizing to a great extent the manifestations here, the glands being but slightly enlarged, yet the symptoms are out of all proportion to the local lesion. Treatment applied to the parts will fail, but only diatetic and constitutional measures directed to the general diathesis, will produce complete relief, yet when the foreign body sensation, cough etc., disappear, the physical appearance remains the same. These attacks appear at intervals and are especially liable to recur upon indiscretions in diet.

Rarely does syphilis play a part in the production of hypertrophy of the lingual tonsil and for all practical purposes it is not necessary to consider it in this connection. Allen is one of the few who have observed enlargement in hereditary syphilis, while Davis reported the case of a female of 39 years, in whom the faucial tonsils were almost destroyed, yet the lingual tonsil was simply enlarged. A similar case in a woman came under my care in which both faucial tonsils were destroyed by tertiary syphilis; the buccal tonsil at no time presented any evidences of the disease except hypertrophy, which diminished as the patient responded to constitutional treatment.

In childhood, the acute infectious diseases and especially those with throat lesions, have a direct predisposing influence in the production of future hyperplasias of the gland; diphtheria, scarlet fever, influenza and whooping cough being the most important in this connection. In

my cases below the age of thirty years, 62 per cent. gave a history of one of these diseases.

The character of the food and drink exerts a distinctly unfavorable influence, both in the production of hypertrophy and in aggravating the symptoms when developed. Condiments, excessively hot and cold food, alcohol, etc., favor these conditions and from the relation of the glands to the deglutitory passage, they are necessarily influenced by such irritating agencies. The deleterious effects of poor nourishment, overwork, exhaustion, etc., while not noted as etiologic factors per se, are of sufficient import to be considered in relation to the symptoms in those suffering from the affection. This, of course, bears only indirectly by reducing the bodily reaction of the patient and differs in no essentials from the same influence when exerted upon other affections of the glandular system of the respiratory tract. In varix especially is this manifested and a lack of stability of the vasomotor system is one of the chief factors in its production. Dayton and Browne call attention to the frequent association of tortuous veins of the extremities, rectal hemorrhoids and lingual varix.

A most curious relationship and one pointed out by several authors is that which exists between hypertrophy of the lingual tonsil and varix, with the female generative organs. The tendency to venous engorgement at certain functional periods in the life history of the sex also manifests itself by engorgement of the pre-epiglottic space.

During menstruation, the lingual tonsil already large, becomes more so and produces a set of symptoms that are of but little moment or entirely absent in the interim. A typical case of this nature is recorded by Ellett in which acute enlargement of the tonsil was associated with dysmenorrhea, the symptoms produced by the swelling and especially the dyspnea, were so severe as to elicit considerable alarm. Hagen, a number of years ago, noted this relationship between the gland and menstrual irregularities, for it is in those especially with dysmenorrhea that severe symptoms are seen, while the milder cases with large pale growths at the base of the tongue and with the veins ramifying between the lobules, are found most frequently in amenorrhea with anemia and in the pres-

ence of a general nervous state. I have never observed such severe symptoms in this latter class as in the former, although it is common to find the tonsil much enlarged. Not only do the symptoms occur at the menstrual period, but venous oozing may, at irregular intervals, replace the catamenia. This is the prominent feature in the following case: A. F., of nervous temperament, now 32 years old, has suffered from dysmenorrhea from her sixteenth year. For the past three years, about twice annually the prodromes of menstruation would make their appearance, but instead of the usual flow, there would occur a venous oozing lasting for three or four days. The lingual tonsil was hypertrophied and the dilated veins were numerous and irregular.

As before mentioned, dysmenorrhea is the rule, amenorrhea the exception, and the tendency as regards regularity is rather in favor of frequent and excessive menstruation. Rarely does pregnancy exert any influence, but that it may exceptionally, is evidenced by a case seen several years ago. The woman was in the sixth month of gestation with her third child and was suffering severely from constant cough. No cause could be found except the lingual tonsil which was hypertrophied and the veins considerably varicosed. After cocainization there was immediate cessation of the cough, and as she refused radical treatment, it continued until she was delivered, when the symptoms disappeared, the tonsil diminished in size and no further trouble was complained of. The history was elicited that the cough had developed at previous pregnancies, with its subsequent disappearance after the birth of the child. The menopause is another epoch attended with the tendency to passive hemorrhage, venous engorgement and neural alterations; and at this period the same changes may be seen, more frequently, however, varix predominates.

As the etiologic factors exert an influence here the same as in hyperplasia of other lymph glands of the respiratory tract, we expect the same results modified only by the histological structure of the gland and its pecularlocation. As a result, the majority of cases in which hypertrophy predominates, present associated catarrhal lesions of the upper air tract, but the lesion of the lingual tonsil is often

overlooked on account of its hidden situation and from the component follicles being scattered over a comparatively broad layer. Again the affection does not commence as an isolated acute inflammation, but being essentially chronic from the outset, the attention is not directed to the lingual region. The rest of the throat may present no pathologic changes in nature of overgrowth or venous congestion, although in practically all cases where the tonsil is of any magnitude, the anterior pillars are thickened and show some venous stasis. This condition may be seen without the laryngoscope and a further examination should be made to ascertain the condition of the tonsil when lateral passive congestion is observed.

The co-relation to adenoids is not borne out by my experience, the age at which the symptoms appear, the essential nature of the hypertrophy and the general type of the lingual lesions are all in opposition to this view and instead of being associated with hyperplasia of the pharyngeal vault as some would imply, I am quite sure that the reverse is true. Although the disease occurs more often than is supposed in children, the symptoms are not prominent and usually not recognized, as stated by Price-Brown, on account of the comparative insenitiveness of the throat during early life.

Rarely the acute parenchymatous inflammation may result in abscess. This form of abscess which is distinguished from hyperplasia only by the evidence of pus on evacuation and producing the same symptoms with little or no signs of inflammation, has been described by Mounier, two cases coming under his observation with symptoms so slight as to almost pass unperceived. Vitiated buccal secretion may, as claimed by Rualt, be a factor in the causation, this author reporting 120 cases in which he found buccal and dental lesions in 35. The secretions flowing over the parts and remaining in the fossa, supposedly render it more liable to inflammation than in those with healthy buccal cavities.

As to frequency, Arrowsmith found the lingual tonsil affected in 56 of two thousand cases; Scheppegrell saw 8 in one hundred cases of nasopharpngeal disease; Barnhill found it enlarged in twenty per cent. of cases and in one per cent. he found varix. Lennox-Browne in 17556 cases

of nasopharyngeal disease found varix and hypertrophy in ten and one-half per cent. in hospital practice, and in his private patients this was increased to 28 per cent. In one-third of varix cases there was hypertrophy. In my own practice, both private and hospital, between fifteen and twenty per cent. of all patients have more or less hypertrophy of these glands, while two or three per cent. have varix.

Associated conditions acting as etiologic factors or as complications have been observed in a number of cases. Dmochowski believes in its frequent association with tuberculosis, with which I am unable to agree, although in one case seen a few weeks past, the patient a male of 32 years had always been healthy until two months before I saw him, when he complained of fullness at the base of the tongue. The lingual tonsil was enormously enlarged, but presented no evidences of tuberculosis until two weeks later, when he became a typical case of acute miliary tuberculosis, dying within another week. The lingual tonsil showed simple hyperplasia with no deep infection but its mucosa was covered with secretion containing enormous numbers of tubercle bacilli.

It may also be associated with irritable heart and neurasthenia, Gillot considering varix as indicating a predisposition to apoplexy. Severe paroxysmal dyspnea, cured by local treatment to the lingual tonsil has been reported by Mayo Collier; Casadesus reports a case of hypertrophy causing nocturnal asthma, cured by cautery and Shurly, Cohen and Swain state that it sometime leads to laryngeal catarrh but probably not often. Browne calls attention to two cases associated with diabetes and believes there may be a distinct relation between the local and general affection. Lewis observed several cases of goitre, complicating hypertrophy, the thyroid enlargement however was slight and was cured by treatment directed to the tonsil. In opposition to this Bowen examined six cases of goitre and did not find any disease of the post-lingual space, while I have examined four cases with this end in view and found no evidence at all of the condition. Gleitsmann cured a case of laryngeal vertigo by applications to the tonsil. Berens recently recorded a case in a young man in which the lingual tonsil resembled

two almonds laid side by side and covered with mycosis so as to interfere with the epiglottis. Barnhill believes that functional heart disease is often aggravated and sometimes wholly caused by disease of the lingual tonsil.

Many cases even with large hyportrophies present no symptoms even when the growth apparently overlaps the epiglottis, while another class will present a varied array of sensations out of all proportion to the slight changes present. Barnhill believes that this depends upon two causes; the first that in highly sensitive cases, the slightest touch of a foreign body against the epiglottis will excite various reflex centres of the respiratory tract that is not possible in less sensitive persons. And secondly, the conformation of the epiglottis is such that instead of standing erect as it normally does, it curls forward against the base of the tongue and so impinges on the slightest enlargement of a single gland. Both these factors play an important part in the production of some of the symptoms, the neurotic element however predominating.

The symptoms are principally localized to the region involved or within its immediate vicinity and may be either direct or reflex depending to a great extent upon the temperament of the individual. For purposes of study they may be grouped under six classes, (a) cough; (b) foreign body sensation; (c) parasthesias; (d) voice changes; (e) hemorrhage; (f) respiratory distress.

Cough is the most frequent and constant of the symptom group resulting from the tonsillar changes. In children slight enlargement of the lingual tonsil is a common cause of cough, especially the barking cough of puberty, most marked when the child first lies down at night. It may be due to irritation of the epiglottis by the glandular mass, or in the absence of such mechanical cause, may be a neurosis. Rice in this country was one of the first to demonstrate the presence of this symptom as originating from the hyperplastic lingual tonsil. The cough is hard in character, sharp, metallic and ineffectual, occurs in the absence of other lesions of the respiratory tract, is unattended with expectoration as a rule, and may be temporarily made to disappear by anesthetising the tonsil. When due to enlarged veins, I have in two cases

been able to produce its disappearance for a time, by contracting the blood vesssels with suprarenal extract. The irritation at the base of the tongue may not be of sufficient intensity to constitute a definite cough, but is of a hawking or hemming character. Again it may be violent, constant and hacking and it may seriously affect the general health of the patient. It may be associated with other symptoms and produce the impression that the patient is suffering from tuberculosis or other serious affection, as in a female, 25 years of age, reported by Foster, with anemia, anorexia, insomnia, constant hacking cough, dread of suffocation, neurasthenia, constant desire to swallow and profuse hemorrhage three or four times a day. The lingual tonsil was enlarged, varicosed and bled on the slightest touch. A perfect cure was effected by destroying the veins with the cautery.

Of the extra-pulmonary coughs, that from the glosso-epiglottic space is undoubtedly the most frequent and unless this portion of the respiratory tract be examined as it should in every case of cough, serious errors in diagnosis must ensue. Barnhill relates a highly instructive case in a female of 44 years, of delicate appearance, with considerable cough and frequent attacks of sore throat. No cause could be found except a varix at the base of the tongue, large enough to come into contact with the epiglottis. The cautery was used and complete cure confirmed the correctness of the presumption. The cough may be purely paroxysmal and only occur when the individual first attempts to eat, at times becoming so severe as to produce emesis. Very infrequently I have found it to continue after the hypertrophy had been removed, but further study would show that there still existed enlarged veins further forward on the base of the tongue and on removing these the irritation permanently ceased. Such a case was seen in a male, 37 years of age, with a large unilateral mass; the veins were not considered of sufficient import to require attention and the hypertrophy was alone snared off. Although this produced relief, a modified cough still continued, to be finally cured by destroying the remaining varix.

We should not depend entirely upon the statement of the patient as regards the seat of the symptoms and

especially the cough, as the latter is frequently referred low down in the larynx or to the pharyngeal wall, when examination shows these parts to be normal while the lingual tonsil is enlarged and varicosed. Bottome reports ten cases which illustrate the severity of the symptoms in the presence of slight pathological change. There was a tendency to rapid tiring of the voice and hoarseness; the respiratory tract was normal except a circumscribed area of congestion at the base of the tongue, while the veins were prominent but not varicosed. Five of the patients had just recovered from bronchitis which was probably a causal factor, while in six, who were public speakers, it developed from a certain day when the voice was unusually tried. The cough was distressing and all were cured by passing a flat, broad electrode over the enlarged veins. In concluding his report the author correctly states that it is well to bear in mind that a comparatively trivial condition and not necessarily a greatly enlarged tonsil or varix, may account for a troublesome cough.

When the growth is extremely large, it is not uncommon to find the tip of the epiglottis firmly embedded in the mass. It has been suggested that the so-called winter cough might be associated with lingual tonsillar changes and while I have no notes bearing out this relationship, in many the features of the cough are similar and one can see no reasons why such a relationship should not exist.

Next in frequency to the constant hemming and cough, the patients complain of a sensation as if a foreign body was located at the base of the tongue. This may be of nervous origin in extremely neurasthenic individuals with a barely visible enlargement of a single follicle, or it may vary through different grades to the large mass as in a case seen by Ellett where the lingual tonsil was so large that he could see it without instrumental aid and was able to amputate it with an ordinary straight tonsillotome. This lump in the throat as the patient describes it, usually excites constant and futile attempts at swallowing with however little or no relief. In occasional cases with slight enlargement, but in which one or two of the the crypts contain cheesy masses similar to those seen in the common affection of the faucial tonsils, this foreign body sensation is especially vivid and is based upon the

actual presence of the debris which acts as a definite extraneous substance. The foreign body sensation is prominent when the hypertrophy is in the median line, the interference with the surrounding parts being greater than when the lateral halves are widely separated. In another class, the tumor projects over the epiglottis, so that during deglutition the growth is pushed backward by the tongue and practically fills the lower pharynx. In these the trouble is to a great extent mechanical and the patient complains that the throat is growing together. Fortunately these cases complain of but few other symptoms and are readily relieved by appropriate surgical measures.

The neurotic element, is an integral part in the production of the various paræsthetic and hyperæsthetic phenomena so frequently observed even where there are insignificant alterations of the veins and glands. This is demonstrated by the absence or paucity of these symptoms when the nervous organism is well balanced but let there be the slightest depression or exhaustion and the symptoms stand forth prominently. The paresthesia may assume the most diverse forms and approach very closely to the border line of hysteria. It may resemble a feeling of intense cold at the base of the tongue; tenesmus is present, but is apt to disappear during meals to recur immediately afterward. There may be pain of a tingling, pricking or irritating character referred to the region of the hyoid bone, or when the masses are situated laterally, it will invade the aural region. In a few the distress will be located at the clavicle or between the scapula, while in others there may be a localized area of formication or a mere sense of weight and discomfort. Tenesmus may be so severe as to constitute a serious complication and be only dissipated by destroying the varix with which it is associated.

Globus hystericus so-called, is another symptom in highly sensitive women and frequently depends upon some lesion of the lingual tonsil as demonstrated a number of years ago by Browne and later by Kronenberg. While this condition is frequently considered hysterical in its nature, a large percentage will show varicose lingual veins and a closer study of these cases will clear up the etiology in not a few.

Pain may be due to direct pressure upon the filaments of the glosso-pharyngeal nerve, but is rarely observed, as close questioning will show that it is not true pain such as one finds in an inflammatory condition, but is merely an altered sensory stimulus. The arrangement of the nerves and veins is undoubtedly responsible for some of these paresthesias, for, as shown by Verneuil, Zuckerkandl and Foucher, there is a deep as well as superficial varicose condition of the venous supply and, in addition, the lingual nerve is accompanied by a satellite vein, thus when these blood channels are enlarged and tortuous, the sensory disturbance may be referred to a distance, producing such symptoms as glossodynia or even the imaginary ulcer of the tongue. A case of the latter coming under my observation was almost a mental wreck from the supposed presence of cancer of the tongue. There was no lesion at all of this organ and only after destruction of the tonsillar tissue was the patient convinced that her disease was not malignant. Occasionally one observes a case in which the chief symptom is a sense of constriction in the lower pharynx not exactly a tenesmus but more inclined to resemble the girdle pains of locomotor ataxia.

As from twenty to twenty-five per cent of pathological changes in the lingual tonsil occur in public speakers and singers, the question of morbid changes in the vocal apparatus in the professional voice user is one of paramount importance. Over-use of the voice in the subject of hyperplasia results usually in but a greater tendency to early laryngeal fatigue, but the chief factor in this connection is improper methods of vocal training and the abuse of the vocal function. In singers, the voice readily tires and there is constant fear that it will fail at any time and a peculiar hoarseness is experienced, which disappears after a few hours rest, but recurs with each singing exercise, or by the growth and dilated veins interfering with the epiglottis. Not only the singing, but also the speaking voice is incapable of responding to any sustained effort. When extreme hoarseness or complete aphonia takes place, the lingual tonsil can hardly be placed at fault, as it is usually due to some intercurrent laryngeal affection, the mucous membrane of the larynx

being generally singularly free from catarrhal processes in the presence of a lesion of the buccal tonsil. In the cases which have come under my care in which the singing voice was affected, the majority did not complain to any great extent of other symptoms, this probably being due to the small amount of hyperplasia and the glandular masses being widely distributed, the epiglottis being affected to a less degree than is usual when the hypertrophy is larger. These effects also depend upon the character of the singing voice: in the basso, considerable enlargement may exist with no deleterious effects, while, in the soprano, where the epiglottis becomes more erect the higher the note sung, very little alteration will seriously impair the vocalization. Of course when the epiglottis is bound down, singing or lengthy speaking is totally out of the question.

Hemorrhage is the characteristic symptom of lingual varix and it may simulate hemoptysis or hematemesis, although its source rarely presents any difficulty to ascertain, as the dilated and tortuous veins often several millimeters in diameter are readily seen with the laryngoscope. In cases where the veins are affected as a local expression of a general condition, the vascular network may be so extensive as to cover the base of the tongue, the lingual surface of the epiglottis or even extend on the lateral pharyngeal walls. In these cases and in all instances of hemorrhage per os, careful examination of the lingual tonsil should be the imperative rule. Bleeding however, is rarely profuse, but there may be slight hemorrhage in the morning on arising, staining the secretions; the pillow may be stained at night as is frequently seen in children with adenoids, or it may occur imperceptibly during the day and being swallowed is unknown to the patient unless he realizes the saline taste in his mouth, or vomiting ensues with the presence of the blood in the ejecta. In the varicose condition associated with the increase in the cellular constituents of the gland rather than of the connective tissue elements, the secretion is increased and there is a feeling of fullness in the throat, due to the accumulated secretion and sometimes venous oozing. This feeling of weight continues until free bleeding takes place, when relief is obtained. Hemorrhage does not always

indicate conjoint hyperplastic changes, as in many cases the tissue is normal or it may even be atrophied, but with a case of morning hemorrhage, one may confidently predict the presence of lingual varix.

While the bleeding is of little influence as regards the production of anemia except in insolated cases where the conditions have not been recognized, it may be but the local expression of some general and more serious condition, Dickson considers it diagnostic of thrombotic and hemorrhagic lesions of the brain in some cases and sometimes marked cardiac weakness. Kyle reports five cases with repeated attacks of slight spitting of blood, in all of whom the veins were dilated and sacculated. Joal has reported three cases of hemorrhage from this region and I have observed six cases in which the bleeding was severe.

Respiratory distress may be slight from partial interference with the epiglottis or it may be so intense as to cause great suffering from dyspnœa. When such is the case it is undoubtedly due to nerve stimulation and not to actual obstruction, unless the epiglottis is embedded in the mass. Boylan has reported an instructive case in which dyspnœa was a prominent symptom, while Gleitsmann and Farlow believe that many cases considered hysterical in origin, are associated with enlargement of the lingual tonsil, the former citing an instance of severe respiratory distress, which was cured by cauterizing the enlarged tonsil. Acute attacks of suffocation I have observed in two cases. The local application of cocain gave almost instant relief, probably by its influence upon the branches of the superior laryngeal nerve, whose fibers are distributed to this region.

Meyer has seen vomiting take place, while I have found nausea to be quite constant in varix and even in simple hypertrophy with accumulated secretion. The sense of taste is rarely impaired unless there is associated change of the papillae or the veins are much enlarged. In one case coming under my observation with both varix and fibroid change of the entire tonsillar area, the taste was entirely lost and only returned in a defective degree after thorough treatment. Spasmodic movements of the larynx, laryngeal spasm and torticollis have been seen by Browne while Villecourt reported a woman of thirty years, in whom

intense dyspnœa suddenly occurred followed by cyanosis on the following day; the right arm was heavy, motion was difficult and there was partial anæsthesia, with the electrical contractility of the muscles diminished. In one week, reduction of the enlarged tonsil by local treatment produced entire disappearance of the symptoms. He believes the hypertrophy to have been the transgressor in this case, but although the reflex and direct symptoms produced by pathological alteration in this region are fairly numerous, it seems incredible that such an array of symptoms should originate from the buccal tonsil.

The pathological changes in the gland vary with the tissue predominantly affected. When the glands are enlarged in greater amount than the other tissues, they are apt to be bilateral and nodular, each lymphoid mass standing out prominently from the adjoining one; the tissues are soft and resemble the hyperplastic changes so commonly observed in the faucial tonsil. Again the growth may be very large if the connective tissue predominates and the single lobed gland on either side of the median fold may lap over the tongue as in a case reported by Thrasher. From the soft mammillated gland resembling a bunch of berries, which is characteristic of the lymphoid changes, there are many modifications to the other extreme, where the mass is usually unilateral, resistant to the touch and in many cases filling up the lingual space. In this form the surface is smooth and shining and in the absence of varix, pale in color, resembling the epiglottis as regards its tint. When both tonsillar masses are involved they are separated by a central furrow and on touching the tumor with a probe, isolated areas are found to be extremely sensitive, firm pressure producing cough or any of the reflex symptoms characteristic of the individual case.

In all forms of enlargement, the veins may be dilated, tortuous and arranged in an irregular fan-like shape over the base of the tongue. They are present between the individual masses and form a complete network, with here and there local dilatations or actual nodosites in which the blood stagnates, resembling to a striking degree, their analogue, rectal hemorrhoids.

The laryngoscope is essential to recognize the growth and no difficulty should be experienced in determining this

fact, but when reflex and obscure symptoms are present great difficulty is often met with in establishing the connection. The probe in preference to the finger of the surgeon should always be used to determine the consistancy of the glands and to establish points of special tenderness from which both direct and reflex symptoms may originate. In order to ascertain the degree of mechanical pressure exerted upon surrounding tissue after the condition has been determined, a point which I have found of much practical value is to use a small mirror and examine the parts without disturbing the tongue or altering the normal relation of the tissues. The degree of vascular turgescence may be determined by the application of the extract of the suprarenal gland and this will also establish the relation of any symptoms that may be due to changes in the vascular channels. Cocain should never be omitted in determining the reflex nature of the phenomena in cases complicated with morbid alterations of the faucial tonsils or with other changes in the respiratory tract which obscure the diagnosis. Its value for this purpose being amply shown in a case coming under my observation with catarrhal changes of the bronchi and upper respirator tract. Cough was incessant and the patient a female, twenty-eight years of age, was incapacitated from work on account of the violent cough. The left lingual tonsil was enlarged and barely touched the epiglottis; cocain was applied and the cough ceased for the first time in months. The tonsil was then removed with permanent relief.

The treatment which I am in the habit of using, depends entirely upon the character of the pathological changes present in the individual case. If the tonsil is but slightly enlarged from hyperplasia, attention to the general health, the avoidance of alcoholic drinks, smoking, or irritating food are recommended and the parts are painted with tannin in glycerin several times weekly. This is usually satisfactory and the condition rapidly improves, attention also being given to the entire upper respiratory tract. Dilute hydrochloric acid, nitrate of silver in varying strength and any of the remedies of this class may be applicable in certain cases. While in a few where the symptoms are due to the anemic condition or neuræs-

thenic state of the patient, general treatment alone will do all that is required. Sajous found that the administration of small doses of mercury and iodide of potassium gave excellent results even in the absence of a specific history.

While general tonic treatment is always of value, yet one can expect little change in the glands from mild local measures or internal medication if the enlargement is at all prominent or impinges on the epiglottis. In the majority of cases operative measures are indicated and as the removal of the tonsil is attended with good results and little unpleasant after effects, it is to be recommended in suitable cases. The choice of instruments will depend to some extent upon the presence or absence of varix and the size of the growth. If there is a large fibrous mass, I prefer the cold wire snare. Very large masses may be removed in this way with but little pain and comparatively little bleeding. The galvanocautery snare presents no advantages when used here and has the serious disadvantage of burning the surrounding tissue with danger of the development of glottic ædema.

Winckler has devised a curved curette for this purpose which presents no advantages over other methods and even in experienced hands is not devoid of danger. The lingual tonsillitome with a long curve, is very efficient if the veins are scant and the danger of hemorrhage is reduced to a minimum. Its application is the same as that of the usual instruments for the faucial tonsils and it leaves a clean out surface which heals promptly with a minimum of discomfort to the patient. The galvanocautery with a properly curved tip and long shank, is useful in reducing small glands and it is the instrument preeminently adapted to destroy the varicose veins. In using it great, care must be taken to avoid injuring any tissue but that which it is intended to destroy. If the veins are small they should be seared with the cautery at a cherry red heat, while if large and tortuous they should be entirely destroyed. Only one or two veins are treated at each sitting and the inflammatory reaction is allowed to disappear before another seance is held; usually a week's interval between each cauterization is sufficient. In those cases where the tonsils are hypertrophied and varix is present, the veins must be first destroyed and the enlarged

mass afterward removed by whatever method is deemed advisable. Care must be taken to avoid hemorrhage as far as possible, as it is extremely difficult to control bleeding in this location.

Roe's tonsillitome is a most valuable instrument and is readily applied by catching the ring under the growth and pressing downward, when the tonsil will project through the opening and the mass is removed by a clean cut. I have used this instrument in a number of cases, with the most satisfactory results. After any operation a certain amount of swelling and soreness ensues often lasting for several days. The patient should be given light, bland food, either liquid or semisolid and should allow small pieces of ice to dissolve on his tongue at frequent intervals, or if swallowing is very painful I have had excellent results with the dried suprarenal gland macerated in the mouth and allowed to remain in the back of the throat as long as possible.

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XXIII.

LITHEMIC NASO-PHARYNGITIS AND OTHER MANIFESTATIONS OF SYSTEMIC DISTURBANCES.*

By J. A. Stucky, M. D.,

LEXINGTON, KY.

By the term lithemic pharyngitis is meant that type of pharyngitis having a close etiologic relationship to rheumatism or the lithemic diathesis. When we remember that the pharynx is more especially a portion of the alimentary tract, rather than of the respiratory tract, we can readily understand how it might be influenced by the lithemic diathesis, as this has its origin in the faulty metabolism occurring in the liver, or perhaps just as often to autointoxication caused by the absorption of by-products from the intestinal tract.

Of the authors of the recent leading textbooks on Laryngology and Rhinology—Kyle, Bosworth, Lennox-Browne, Ingals, J. Price-Brown, Ballenger, McBride, Shurley, Friedrich, etc.—the views of Kyle more nearly corroborate the clinical features as observed by me, than any other.

The disease may be defined as an acute inflammatory or congestive process, caused by acid urates which have not been eliminated by the proper channels. The excess is distributed to the structures especially concerned in secretion and elimination; irritation of the superficial structures follows, the marked vascularity of the pharynx rendering it particularly susceptible, the position making it more disagreeable to the patient because of use of muscles in swallowing.

The irritation is produced because uric acid in its various forms excites inflammatory reaction not only in the mucous membrane of the kidney, but in other mucous membranes. The excessive elimination of uric acid demanded of the

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kidneys and the inability of the organs to cope with the demand cause the deposit in other membranes. In lithemia, there may not be an excess of acid in the urine, but there may be retained and absorbed into the system the products of nitrogenous metabolism, and the local inflammatory process in the pharynx is most marked. The local manifestation of the diathesis may not be confined to the pharynx alone, but may exhibit itself in affections of the laryngeal, nasal and gastro-intestinal tract, without other constitutional symptoms.

A person whose vitality is below par is as susceptible, if not more so, to an attack, through over-indulgence in eating and drinking, as by exposure to cold. The attack causes primarily no lesion, except that which is forced upon it by the irritation of the acid in the blood. There is no distinct pathologic alteration, this being a local manifestation of a systemic condition.

The exact nature of the diathesis in gout, rheumatism or lithemia has not been settled, yet the clinical phenomena and alterations in the mucous membrane are practically the same. The attack may come on gradually with slight tendency to headaches, pains in muscles, especially of the neck, or it may be ushered in suddenly, without apparent cause known to the patient; when the latter is the case, the first symptom noticed is sensation of fulness and accumulation in throat, which is increased by swallowing. There is constant desire to swallow, which is attended with much discomfort, the throat having a rigid, stiff feeling and being hot, dry, and irritated. The movements of the individual with an aggravated lithemic throat are almost characteristic, with each movement the head assuming a different position.

The attempt to clear the throat produces a sensation of pricking with a sharp instrument, showing that the affection is superficial. There is only slight elevation of temperature, the chief manifestation being soreness of throat.

The systemic disturbance as indicated by the temperature, pulse and inflammatory condition are not sufficient to account for the pain and discomfort. The redness and swelling of tissues are more marked behind the posterior pillars of the fauces, while other portions of throat are but slightly congested. In most of the well marked cases the

uvula was rigid, slightly swollen, congested or edematous, and pain in the ear was produced by the slightest attempt to swallow. In almost every case there was a pricking and itching sensation, accompanied by feeling of tightness and constriction and of the constant presence of a foreign body. In several the acute local manifestation in the pharynx was followed by articular rheumatism, and I am convinced that the first indication in many instances of approaching articular rheumatism is felt in the pharynx. A number of cases can bring on an attack in a few hours by eating freely of meats and sweets and drinking fermented wines.

The primary cause of lithemic pharyngitis, as well as many cases of spasmodic rhinitis or vasomotor coryza, is internal, and the exciting factor in precipitating the acute attack is not more frequently exposure to cold, than over-indulgence in eating and drinking. These cases, as a rule, are overfed and underworked and lead a sedentary life. A starving man neither takes cold or suffers from lithemic or rheumatic trouble. "An overfed person is worse off than one who is underfed because the overfed body is taxed to dispose of what connot be appropriated, and when not properly disposed of, remains only to be an element of danger." (J. C. Shepard)

Treatment.—The disease being a local manifestation of a systemic disorder, local treatment amounts to practically nothing except for its psychologic effect, and when used must be of the simplest nature. Sprays, gargles, etc., tend rather to increase irritation. Any application containing astringents, cocain, or similar drugs, is contraindicated. In the beginning of an attack, if inflammation is marked and the tissues swollen, thorough cleansing of the pharynx, tonsils, post-nasal space and anterior nares, with hot alkaline and saline solutions by means of lateral and postnasal sprays affords marked relief by removing the retained viscid secretion. After this is accomplished no further local treatment is needed except a gargle of hot mentholated alkaline solution for its soothing effect.

The cause of the trouble, originating within the body and being either retention and absorption of acid urates or autointoxication caused by the absorption of by-products

from the intestinal tract, our treatment must be directed to the removal of the cause. Increased metabolism by stimulating the liver and regulating the action of the bowels, also the diet and habits of the patient, not only will prevent the further formation and retention of uric acid in excess, but will stop the autointoxication from the intestinal canal.

The drugs indicated are those that will hyperalkalinize the blood and increase its solvency for urates. Subalkalinity of the blood indicates diminished oxidation, and consequently retarded nutrition, both being favorable to the formation of uric acid in the body as well as to the growth of pathologic microorganisms, in this way favoring autointoxication.

The causative systemic factors to which attention is first directed are: 1. Gastro-intestinal. 2. Cutaneous. 3. Insufficient physical exercise. In the beginning of an attack a full dose of calomel followed by salines, repeated often enough to thoroughly cleanse the intestinal canal, is the first indication to be met. The salicylates and lithium salts combined with minute doses of pilocarpin, repeated until free diaphoresis takes place, give speedy relief. The skin should be kept in order by daily bathing and friction so that its reaction shall be prompt. Most lithemics have so sluggish a cutaneous surface that it practically does not eliminate. Daily exercise with restricted diet and regulation of the hepatic and gastro-intestinal functions, give most favorable, prompt and lasting results.

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XXIV.

A CASE OF CONGENITAL FISTULA OF THE EXTERNAL NOSE.

By Norval H. Pierce, M. D.,

CHICAGO.

PROFESSOR OF OTOLOGY, POLYCLINIC; LARYNGOLOGIST AND OTOLOGIST TO MICHAEL REESE, PASSAVANT MEMORIAL AND CHICAGO HOSPITALS, AND TO THE CHICAGO ORPHAN ASYLUM; SURGEON IN EAR DEPARTMENT ILLINOIS CHARITABLE EYE AND EAR INFIRMARY; FELLOW CHICAGO ACADEMY OF MEDICINE.

This case is reported, first, because an error was made in diagnosing its nature, and consequently, because of ineffective treatment, the condition was made worse. The patient was a young woman aged twenty-four, married. At the age of fourteen, she noticed a swelling over the dorsum of the nose, coming on very gradually, and which, after about three months from the beginning, was the size of a large pea. About this time, edema over the forehead and eyelids began. The skin immediately over the swelling became reddened and the hitherto well demarcated swelling became more or less diffuse over the surrounding tissue. The physician who was called in at this time made a diagnosis of abscess of the bridge of the nose, and recommended opening the abscess immediately. After the operation, edema and pain disappeared, and the discharge, which she said was very thick, also disappeared. A fistula remained, however, which was subject to attacks of inflammation. She gives, also, a history of several recurrent attacks of inflammation over the bridge of the nose, accompanied by edema of the eyelids. As you see by the photograph, there are now two holes: one immediately over the lower third of the nasal bones and the other one above the cartilaginous portion of the tip. By passing a Eustachian bougie from one to the other, you can see that they communicate. Both of these openings continuously discharged a sebaceous material and, occasionally, pus.

From the upper portion may be seen protruding the ends of a few hairs, which apparently have their origin lower down in the canal. The patient has become markedly morbid over her trouble, which is largely due to a physician having told her that the disease was due to rotten bone within her nose.

As she objected to operation, I began with electrolysis for the purpose of destroying the membrane lining the fistula. I used about twenty-five milliamperes at two or three sittings, but, as the pain was very severe, and no appreciable result was obtained, she consented to an operation, which was performed under a general anesthetic. The fistula was laid open and found to be lined with a smooth, shining membrane, having the appearance of mucous membrane. After diligently searching out the upper portion of the fistula, a branch was discovered which dipped down beneath the left nasal bone. This, however, was blind and, at the time I saw it, had no opening into the interior of the nose. The tissue, on account of its delicacy, was with some difficulty dissected out; especially was it difficult to dissect it from the cartilaginous structures of the floor. After thoroughly dissecting, the sharp spoon was used in order to remove any remnants that might be left, and the wound closed up with sutures. Healing occurred by first intention, but after about three weeks a small swelling appeared in the lower portion of the wound, which broke of its own accord and emitted a sebaceous material mixed with pus. This readily yielded to applications of trichloracetic acid, since which time the patient has had no further trouble.

This, then, is evidently a fistula resulting from a congenital dermoid, a somewhat rare condition, as applied to the bridge of the nose. Dr. Robert Krieg, in his "Atlas der Nasen-Krankheiten," depicts several cases of this condition.

The first is a congenital dermoid, in a girl three years of age. The tumor was noticed directly after birth. It was roundish in form, about the size of a hazelnut, not freely movable, but adherent to the deeper layers of tissue; it was covered with healthy integument and situated in the middle line on a level with the canthæ. The tumor increasing in size, it was removed one year later by the pa-

tient's attendant. In this tumor, the interior was healthy and contained only sebaceous matter, no hairs having formed.

The second case was in a woman aged twenty-six, who had a roundish tumor, size of a large pea, which had been present since birth and was situated on the dorsum of the nose. There was no noticeable adherence to the substratum. In its center was a slightly reddish depression, out of which, on squeezing the tumor, some sebaceous matter could be pressed. The patient refused all treatment, as the tumor does not inconvenience her in the least.

The third case (Plate II.) was one of congenital dermoid fistula. History: Woman, aged twenty-one, with nine brothers and sisters, suffering from nothing similar; also, no harelip in family. The patient assured the attending physician that the condition of the nasal dorsum was congenital. According to her mother's statement, she was under treatment at various times during the first three years of life. The patient remembers that since her sixteenth year, yellow, puriform drops could be squeezed out of the tumor. Where the nose had previously had a

slender form, it now began to swell over the nasal bones. This occurred in December, 1897, a year previous to observation. In twenty-four hours the swelling extended upward to the hair border, on a level with the eylids, so that it was only possible to open the right eye but slightly and the left one not at all. At the same time, severe pain, fever, and general weakness were so great as to confine the patient to the bed. Eight days later the tumor had decreased to the size which it now presents.

Present condition: Situated exactly in the middle line, 5 cm. below the lower border of the nasal bones, is a swelling forming a smooth level in the nasal skin, with raised edges. It commences below as a shallow depression, further upward, becomes deeper, and ends posteriorly in a tunnel, out of which one sees some fine black hairs projecting. The region of the root of the nose appears asymmetrical, in consequence of the swelling of the left nasal bone, which projects forward to the left, falling off abruptly in that direction. It is soft, but not distinctly fluctuated. Near the left internal canthus the skin is tender, reddened and thin; on pressure, the tumor discharges, out of the tunnel-like opening, sebaceous matter. On introduction, the probe first penetrates the superficial opening immediately beneath the superficial skin, and then enters the swelling in a direction upward and to the left, until it reaches a second bending in the middle line which penetrates under the nasal bones into the nasal septum.

Operation: A director is passed through the fistula and an incision is made over the skin, from above downward. Circumcision of the grooved depression, followed by detachment with the raspatory from below, excepting that part which branches off and lies deeper down below the nasal bone; this later it was found necessary to cut off with the galvano-cautery. The left nasal bone shows no atrophy from continuous pressure. The patient made an uneventful recovery, and is in good health at the present moment.

Microscopic examination: The fistula was found lined with epidermis of the pavement-shape variety, containing isolated hair-follicles and very numerous sebaceous glands. The sub-epidermal tissue shows, here and there, aggrega-

tions of round cells. Sections through the deeper layers of the excised piece show connective tissue next to the more granuloid structure. They contain a few mucous glands, and curiously enough, numerous, irregularly, dispersed giant cells, and aggregations of same into groups.

The fourth case was one of congenital dermoid fistula in a girl of eighteen, who, since could remember, always had a small protuberance in the center of the nasal dorsum. She gives a history of having knocked her nose against a door when she was about three years old, at which time an opening formed which discharged matter. Two months ago the fistula was opened in another hospital, and scraped with a Volkmann's spoon. After three weeks it reopened and commenced to discharge again. At present there is, in the middle, directly under the nasal bones, extending in a vertical direction, a fistula five mm. in length, out of which sebaceous matter may be squeezed. Extensive cauterization of the fistula with caustics, brought about permanent healing.

Krieg says that the dermoid fistulæ of the nasal dorsum do not belong, from an embryonic point of view, to the arrest of development of the facial clefts, but owe their origin, according to Witzel, to the imperfect apposition of the two tuberosities, which, rising on both sides of the median nasal furrow, approaching each other in the center of the face, ought to form the cartilaginous nose and septum by coalescence. The first of the four cases, was from the beginning a closed dermoid, but evidently on the point of forming a fistula. In case III, the fistula was congenital, whereas, in case IV, the fistula did not open and discharge until the patient had attained her fifteenth year.

In my own case there was at first a congenital dermoid, which undergoing inflammatory changes, was mistaken for an abscess. Subsequently, a fistula formed, and so remained until she came under my observation. There was very slight pressure atrophy of the lower portion of the nasal bones and of the cartilaginous structure over the dorsum. It is to be noted that all of the cases occurred in females.

XXV.

EMPYEMA OF THE FRONTAL SINUS: SOME OBSERVATIONS ON ITS TREATMENT.*

By George L. Richards, M. D.

OF FALL RIVER, MASS.

OTOLOGIST AND LARYNGOLOGIST TO THE FALL RIVER UNION HOSPITAL; FELLOW OF AMERICAN OTOLOGICAL SOCIETY; FELLOW OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, ETC.

The observations herewith presented are based more on my own experience than on any exhaustive survey of the literature of the subject and the reports of cases and form, therefore, probably only a very limited view of a very large subject; since the arc of the circle which any one man's experience subtends is necessarily very small; nevertheless, the sum total of human knowledge is made up of individual contributions.

A brief review of the anatomy of the frontal sinus seems necessary in order to deal properly with the subject of treatment. The frontal sinus varies in its position, in size, and in the thickness of its walls. It is not developed in early childhood, but appears about the age of puberty, probably from an extension of the ethmoidal cells into the frontal bone, and attains its full development around the twenty-first year. The manner of its development may account for the great variation in its size, and for the relation which it bears to the anterior ethmoidal cells.

Normally, the most dependent portion of each sinus opens downward into the nose, through a duct called the fronto-nasal opening. This duct varies in diameter from one-twelfth to three-sixteenths of an inch, and in length from one-half to three-quarters of an inch. Its outlet is

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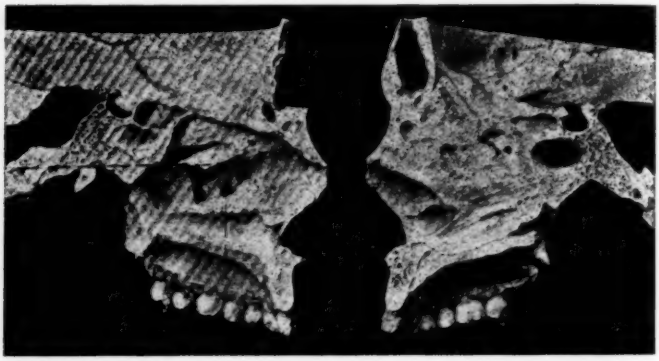
in the infundibulum, a term applied to the upper and anterior portion of the hiatus semilunaris, where it is bounded externally and behind by the bulla ethmoidalis, in front by the processus uncinatus of the ethmoid, internally and above by the anterior third of the middle turbinate bone.

The natural openings of the antrum of Highmore and those of the ethmoidal cells are in the hiatus semilunaris,

Fig. 1.



Right and left halves of the same skull. In the right there is a good-sized frontal sinus, the walls of which are thicker below the supra-orbital ridge than above, but an opening below the ridge would have given easy access to the fronto-nasal canal, and at the same time have been at the most dependent part of the sinus. In the left half, the inferior tubinate and the anterior end of the middle turbinate have been removed. The natural opening into the maxillary antrum is indicated by the vertical dotted line, while above the processus uncinatus is plainly visible. The horizontal dotted line points to the infundibulum, which is prolonged into the frontal sinus and the fronto-nasal canal. In this case a probe or canula could probably have been passed into the frontal sinus. (Author's collection.)

but behind the infundibular opening of the fronto-nasal duct. Between the frontal sinus and the infundibulum, the fronto-nasal duct is separated by thin walls from the anterior ethmoidal cells, while in front of it are usually several small cell spaces, called by Hartman the frontal cells of the ethmoid; of these he describes three—an anterior, an outer, and a posterior. These cells have very thin walls, sometimes almost as thin as paper. The di-

rection and position of the infundibulum and fronto-nasal duct being dependent upon the size and development of all these boundary structures, it is easy to understand how difficult it may be in many, or even in most instances, to satisfactorily reach the sinus, for purposes of exploration or treatment, through the natural opening.

Fig. 2.

Two halves of the same skull. In the right half there is no frontal sinus above the supra-orbital ridge, diploic bone being found in its place. Just underneath the ridge, at the inner angle, is seen an opening; this leads to a small sinus which communicates with the nose through the usual fronto-nasal canal, and is large enough for an empyema. The sinus is present in the left half. It is about the average in vertical extent, but outwardly extends but a short distance. In this specimen opening over the roof of the orbit would have come upon the dura. (Author's collection.)

The anterior wall of the frontal sinus is relatively thick; its posterior wall less so, but still quite thick; while its thinnest wall is over the orbit, a portion of the roof of which it forms, and at which point the wall may be very thin. Its extension outward and upward is very variable, being on an average from three-fourths to one and one-

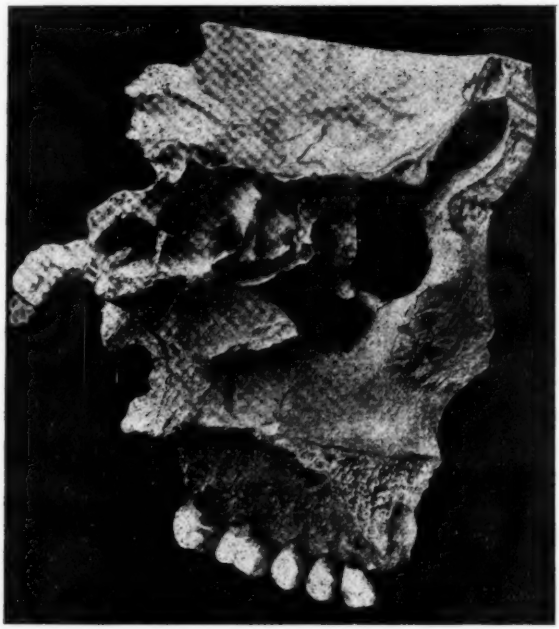
fourth inches above the fronto-nasal opening, and about the same distance outward. It extends backward over the roof of the orbit about half an inch. These are average measurements, but by no means constant. The two sinuses do not usually connect, but may do so; this very rarely occurs, except as a result of disease. They are also variable in their relation to one another, one sometimes being much larger than the other, or one sinus may entirely fail. The division line may be so far to one side as to allow of the wrong sinus being opened at an operation, or it may run diagonally, as in one of my specimens, and there may be septa dividing the sinus into compartments.

What danger has the collection of pus in these sinuses? What are the chances of cure and the best methods of bringing this about? As to the danger, it seems to me that so far as life is concerned this is relatively small. This statement I regard as correct, in spite of the fact of deaths being reported from chronic empyema of the frontal sinus; since anatomic anomalies, secondary infection after operation, or unusual virulence of the pus would account for these, as reports seem to show. We have all discovered cases of chronic empyema of the frontal sinus, with a constant discharge of foul pus, in which the general health was really very good, and the danger to life, by the presence of the pus almost nil. I recall one such case, in which the pus discharge had probably existed for years without any great disturbance of health. Relief was sought on account of the nasal obstruction and the foul odor. Polypi were cleared out, the middle turbinate removed, and this failing to cure the sinus was later opened externally. It was found to be filled with pus and a low grade of granulation tissue, which latter bled most freely on being curetted. After the thorough removal of all diseased membrane recovery was prompt and uneventful, and there has been no recurrence of the trouble.

If one considers the anatomic relationship, and the fact that nature usually seeks an outlet through the path of least resistance, it will be found that there can be no outlet which nature is likely to force except downward, or downward and forward, or outward through the wall of the orbit; that is, nature will be most apt to force her way

out in the region of the ethmoidal and frontal cells, or through the roof of the orbit, in which latter place it is probable that spontaneous evacuation sometimes takes place.

Fig. 3.



Specimen somewhat broken, but showing a good-sized frontal sinus, with very thick anterior wall. The ethmoidal spaces are very large, having extremely thin walls, and communicate with the cavity of the sphenoid. All of the turbinates and the infra-orbital wall have been removed. In case of chronic empyema, the entire frontal, ethmoidal, and sphenoidal areas might have been affected. In that case no single operation would have been thorough enough to have eradicated all of the disease. It is specimens like this which probably account for the long and unsatisfactory course which empyemas in this region sometimes take. (Auther's specimen.)

Aside from the symptoms of pain and headache in the neighborhood of the sinus, and the complaint of nasal obstruction, the diagnosis is made by inspection of the

discharge, which appears underneath the middle turbinate or between it and the septum, and by exclusion of the other possible sources from which this pus might come. Pressure upward on the wall of the orbit will usually elicit pain, though this is not constant. Disease of the antrum and of the sinus frequently coexist, and in most cases it will be necessary to make an exploratory incision into the antrum to exclude that as a possible source of the pus. I have several times opened into the antrum in the canine fossa, under cocain, to determine the presence or absence of pus. Puncture underneath the anterior end of the inferior turbinate is equally efficient for diagnosis. When antrum and sinus are both diseased it is likely that one has infected the other. The antrum is usually the first to be operated upon under these conditions, as the discharge from the frontal sinus may take care of itself after the antrum is healed. If the exploratory puncture of the antrum has been negative, we then have the anterior ethmoidal cells and the frontal sinus as the sources of the pus. The diagnosis here may possibly be very difficult. Transillumination, while by no means decisive, has seemed to me of some value as a diagnostic measure. It certainly is so far as antrum disease is concerned; and in two of my frontal sinus cases the information furnished by transillumination was positive and accurate.

In the text-books one is taught how to carry a probe through the hiatus semilunaris and the infundibulum directly into the frontal sinus. In practice, with a swollen mucous membrane and an enlarged middle turbinate, the whole of which may have been bathed with pus for a long time, and where polypi may also be present, this may be extremely difficult or even impossible. The observer may think the probe is in the frontal sinus when it has passed into some one of the frontal or anterior ethmoidal cells, or even when it is in the superior meatus.

The first thing to do, then, in any case in which pus is evident, is to clear away any obstruction, such as polypi, that may be present. As a rule, it will be necessary to remove the entire anterior portion of the middle turbinate. This also applies to those cases in which the suppuration is acute—such cases as are not infrequently seen following the grip,

and in which the drainage is obstructed by the swelling of the mucous membrane and its underlying connective tissue.

These acute cases tend to get well if the drainage is free enough; and on their first discovery the middle turbinate should be removed and the drainage made as free as possible. After this is done it is frequently comparatively easy to find the track up to the frontal sinus, and with the aid of a silver or hard rubber tube, properly bent, to wash out the sinus, and in a relatively short time to bring about recovery. The proper curve of the tube is obtained by first passing a long silver probe and then copying its curve. In cases of this class the question of an external operation ought seldom to occur, and the diagnosis is usually not a difficult one to make or to differentiate from ethmoiditis or antrum disease, since the attack is acute, is accompanied by pain over the eyes and forehead, and the whole clinical picture is one that admits of comparatively little doubt as to the trouble. I have recently had an acute case of frontal sinus empyema, in which after the removal of the middle turbinate it was easy to pass a curved canula into the sinus. Daily syringing produced a cure in six weeks, and after some months there has been no recurrence.

In that large number of cases in which the purulent discharge has lasted a long time, and in which the formation of polypi has been brought about from the constant drainage of the pus over the structures, and all of the adjacent ethmoidal cells are very likely more or less involved, the question of treatment becomes less easy to decide. These cases are of all degrees of severity. An example of one of the severer ones may make my meaning clearer.

Some three years ago a patient was referred to me by an oculist on account of some trouble in the nose following typhoid fever. She had complained for several years of severe headaches, for which she had been treated by many physicians. She finally drifted into the hands of the oculist, who, finding that glasses were of no avail, examined the nose. To his surprise, he found that breathing through each nostril was difficult, and that there was a constant discharge of pus from each side. Thinking that the cause

of the headaches might be in the nose, he referred her to me for treatment. Treatment was commenced by first removing at several sittings large numbers of mucous polypi from each nostril. I then made exploratory punctures into each antrum without finding any pus. The pus discharge diminished very much from the left nostril, but was no better on the right. I next removed each middle turbinate. Still the headaches were about the same, and the discharge of pus was constant; nor did syringing into the sinus, which was done fairly easily on the right side, less so on the left, seem to accomplish much. I then did the external operation on the right side, in the angle formed by the eyebrow and the root of the nose, and opened freely down into the nose. Fluid pus, without granulations, was present. Thinking that I had now accomplished drainage by external and internal means, I allowed the wound to close in a short time, and did not carry any drainage-tube down into the nose.

There was improvement for a while, but the pus discharge continued, and after a few months I again operated, this time on both sides, in the same locality, and found pus in each sinus. The opening into the nose was enlarged with large curettes, and iodoform gauze wicking passed through, followed in a few days by good-sized fenestrated rubber drainage-tubes passed clear into the nose; these latter were retained for four weeks. The external openings closed; the openings into the nose, in spite of their size, became so small that a silver probe could not be passed through without pain; still the pus discharge continued.

After a few weeks more she was again operated upon. This time the curette was used with greater vigor, so as to break up all of the cells in the region of the outlet; and larger drainage-tubes were put in each sinus. The amount of pus at this time was pretty small in the right side, but she had been complaining greatly of pain in it. Healing took place as before. The tubes were retained several weeks, but still the pus continued. She was allowed to go home, but as the pain was complained of as much as before, and the pus discharge was considerable, she was operated on again two months later.

This time the incisions were made higher up on the forehead, above the supra-orbital ridge, with the hope that

the curette could be passed down into the nose more directly and the operation be a thorough success. It was found that there was still pus in the left sinus, but that the right one had completely closed and had become filled with new osseous growth. This fact would seem to harmonize with the statement of Hajek, that the pain is sometimes worse on the sound side, since, in spite of the healing, the pain did not disappear. At no time did the two sinuses communicate. The wound again healed, and I was under the impression that I had accomplished a cure as relief was obtained for a time; but something over a year later she came to me with the statement that there was still some slight pus discharge from each nostril and an occasional swelling at the inner angle of the right eye, with considerable throbbing pain in the region of the temples, especially on the right.

At her own request she was again operated on. Both frontal sinuses were found to be closed with new bone, and were therefore not opened throughout their whole extent. The natural opening into the nose was reopened and made as large as possible, and all anterior ethmoidal cells that could be reached were broken down and destroyed. The right antrum was opened, but contained no pus. An attempt was made to open the right sphenoid sinus, but it was not very successful. Large drainage-tubes were carried down into the nose, and the external openings closed. The throbbing pain ceased, and the general pain after operating was less than usual. The rubber tubes were removed in five days. On the right side a curved silver tube was carried from the external incision down into the nose and retained three weeks. She is improved in every way, though still under treatment, and the pus discharge from the nose has not entirely ceased. That an absolute cure has been obtained is doubtful, as improvement has followed all previous operative procedures. Considering the number of operations the cosmetic results are very good.

I am inclined to think that in this case I have had an empyema not only of the frontal sinus but of all the adjacent ethmoidal cells, possibly extending as far as the sphenoid, and that the earlier operations failed to open sufficiently for efficient drainage some one or more of these cells; and if I were to draw any lesson from my own

failures in this particular instance, it would be to suggest that when an external opening is made the anterior ethmoidal cells should be destroyed with the curette as far back as it can be made to reach when used from above; and if the cutting portion is kept backward and outward, or outward and forward, there is but little risk of injuring any important structures. If turned toward the centre line it will be possible to injure the lamina cribrosa, which is from 14 to 20 millimetres only from the root of the nose and about on the same level, though sometimes deeper.

[Since the above was written, the pus discharge in this case has ceased, except from the left nostril, in which it was found that the pus came from the antrum, this having been infected by the discharge from the frontal sinus. This antrum had been free from pus at two former operations, and at the last one was not opened as I did not expect to find any pus therein.

Drainage has been effected by opening underneath the inferior turbinate and washing out the cavity every other day with 1-8,000 corrosive sublimate. The result has been that all symptoms have disappeared, and the patient appears well. Should pus continue to come from the antrum for any length of time, the radical operation through the canine fossa will be performed.

This case and my later experience would lead me to suggest that in all frontal sinus operations the antrum of the corresponding side be explored in every instance.]

The foregoing is an extreme case; but can any of the chronic cases be cured by intranasal operative methods? Hartmann thinks it will but seldom occur that they can. In the chronic cases, how long shall the operator be content with having secured fairly good drainage; for it is only exceptionally that the element of severe pain comes in, as in the case just cited? According to Hartmann, the external opening should be made when after a fair trial of intranasal drainage the discharge continues and there is still pain. Most of the chronic cases get a certain amount of relief after the removal of the middle turbinate, and are then somewhat loath to consider the question of an external operation, fearing the deformity and having a certain dread of the length of time required for healing; though the latter, I am sure, would be very much short-

ened if a sufficiently large opening were made down into the nose at the time of operation; and the deformity, when the operation is done at the inner angle of the eye, under the supra-orbital ridge, is nothing. The washing out of the sinus, even after the removal of the turbinate, is still difficult, since the outlet is small; and if polypi or granulations are present in the sinus no cure will ever be effected until an external opening is made. Various solutions are used for syringing into the sinus. Personally, I have had better results from corrosive sublimate, 1 : 10,000 to 1 : 15,000, than from peroxid or any of the other solutions usually advocated. To be sure, the corrosive sublimate irritates sound tissues and is sometimes painful, but it does more good than any substitute. It should be followed by an alkaline douche through the nasal cavities and pharynx, to offset its irritant effect upon the sound tissues. Protargol, in 2 to 5 per cent. solution, has proved of service in the hands of several observers.

I should say, then, after spending a reasonable length of time in the attempt to gain proper intranasal drainage by syringing and douching, the question of an external operation should be presented to the patient and he be allowed to make the choice. He will be very likely to ask if we know that there is pus in the frontal sinus, and if a cure will result; and to both of these questions we may be in doubt as to the answer. Hartmann reports a case in which, after opening the frontal sinus, no pus was found therein, but on further exploration pus was found in the frontal cells. I once opened the frontal sinus in a case of pus discharge which I had at first supposed to be purulent ethmoiditis, having found no pus on exploratory puncture of the antrum. The pus discharge not disappearing after removal of the middle turbinate, I concluded that the sinus must be infected. It was opened and no pus found. Healing took place in four or five days, and no unpleasant results ever came from the operation. The pus without doubt came from some unopened ethmoidal cells or from the frontal cells in the region of the fronto-nasal canal.

Will a cure result? This is the other question certain to be asked. Sooner or later, yes; but how long it will take will depend on the extent of the bone involved; and this is

a question difficult to determine before the sinus has been explored. Diseased bone is notoriously slow to heal so long as any portion of the disease is left, since so long as there is any left it is liable to break down and form pus. Then, again, I have found the tendency of the canal in the nose to close to be a constant source of difficulty. To illustrate:

A case of empyema of the antrum was opened, cleansed, curetted, cured. Pus appeared in the nose. The middle turbinate was removed and the discharge found to come from the frontal sinus. The sinus was opened thoroughly, and, having in mind previous experiences, the opening into the nostril was made, as I supposed, sufficiently large. A drainage tube was retained two weeks, and the opening then allowed to close. Five weeks later there was a swelling at the region of the external wound, and the sinus, or at least a portion of it, was found filled with pus. Under cocain the walls of the sinus were thoroughly curetted and an endeavor made for weeks to bring about a healing, but without avail. An ether operation was again done, more bone cut away, the sinus curetted in its whole extent, and the opening down into the nose very much enlarged, a drainage tube reinserted, and the opening allowed to close. The case was discharged, apparently well, but returned some weeks later with pus as before. The sinus was curetted, drainage, irrigated with corrosive sublimate, and at last healed. This last time I was able, with the aid of a silver tube, to prevent the opening into the nose from closing until the bone was apparently healthy. Some months have now elapsed without any return of the trouble, and there is no deformity.

In another somewhat similar case, which also combined antrum and sinus trouble, a gold tube was made and kept in the external wound for a long time, until the last vestige of pus had disappeared.

So far, then, as the external operation is concerned, it must be allowed that the question is by no means so simple as it at first might be supposed, since the so-called radical operation is not always certain to result in a cure.

At a meeting of the Laryngological Society of London in February, 1901, this subject was discussed, and the weight of the argument seemed to be in favor of the more

conservative methods of dealing with these cases intranasally. Dr. St. Clair Thomson thought that we should be

Fig. 4.

Specimen with good-sized accessory cavities, in which operation in any of the places recommended by various authors would have reached the sinus and allowed abundant room. On the right side is indicated the site for the opening above the orbital ridge and also the openings for the operation in the orbital roof. On the same side is indicated the point for the operation below the orbital ridge. In this specimen there are several septa in the sinus floor and large frontal cells; and had there been an empyema it might have been necessary to do one of the radical operations in order to entirely eradicate the disease, though the opening below the ridge could easily have been enlarged sufficiently to give access to the entire sinus area. Below on the left side is indicated the site for operation on the maxillary antrum, while the small openings on the right side show somewhat of the boundaries of the antrum. (Author's collection.)

slow to claim a complete cure in these cases, and recorded a case in which, although the operation had been done two years before, the patient still had to syringe her nose

three times a day. The pus, he thought, had come from the ethmoidal cells rather than from the frontal sinus, as the fronto-nasal duct was quite obliterated before he allowed the sinus wound to heal. This, however, can only confirm my statement that in the chronic cases we probably usually have to deal with an inflammation of the ethmoidal cells as well as of the frontal sinus.

At this same meeting, Dr. Herbert Tilley said that in cases in which only a drop or so of pus showed itself at the end of each fronto-nasal canal he did not consider himself justified in advising a radical operation, and that the nose should be merely cleansed once or twice daily and nothing else.

Sir Felix Semon replied in answer to the question, "When ought one to perform a radical operation in these cases?" that it was a great achievement to be able to diagnose the cases better and to treat them more successfully than in the past. Over a practice of twenty-five years devoted to special work he had seen plenty of these cases and, so far as he knew, very few of them had come to grief prior to the discovery of the modern forms of treatment. There had been a few cases with threatening symptoms, but they were and are very few. He had seen cases in which suppuration still continued after the performance of the radical operation, further operations were necessary, and the patient finally was not much better off than before. In his opinion, it is a matter deserving very great consideration as to whether or not the discovery of a little pus coming from the frontal sinus demands a radical operation in every case; and the surgeon is bound to tell the patient that the big operation occasionally leaves some deformity.

Dr. Lambert Lack thought the indications for external operation are rather indefinite. If the symptoms are of only slight purulent discharge, he thought the case best left alone. The middle turbinate should first be removed, the anterior ethmoidal cells opened, and the approach to the infundibulum thoroughly cleansed. If this failed he operated externally, endeavoring always to obliterate the sinus, as the only certain method of obtaining a cure. He thought that many cases reported as cured by intranasal operation are really only cases of ethmoidal cell disease.

As a whole, this discussion seems to me to be leaning rather to the extreme of conservatism. It is certainly much more conservative than the other extreme, viz., the operation which Hartmann describes, of removing the whole of the anterior wall of the frontal sinus (Die Verödung der Stirnhöhle durch Abtragung der ganzen vorderen Wand). This would doubtless produce a cure, but it is a question whether our American patients would care for the operation. Hartmann himself is opposed to such an operation on account of the great deformity which results, and says that it does not seem to be necessary, as healing can be brought about through the establishment of a free communication with the interior of the nose.

In the final analysis, the question of operation must depend in each individual case upon symptoms, such as recurring attacks of pain and cerebral irritation, which suggest dangers to the organism from septic absorption; and upon the judgment of the operator and the confidence reposed in him by the patient. In many persons the question of confinement, or the length of time they will be kept from work, will have a large influence, and they will prefer to endure the discharge of pus which is not producing alarming symptoms rather than be kept from their daily vocation long enough to produce a cure. I have such a patient at the present time. The daily washing keeps her comfortable; there is no retention of discharge; and she thinks she cannot afford to lose the time required for the radical operation.

In another case removal of the polypi and middle turbinate has improved all the conditions and the radical operation is declined on the ground of lack of urgent symptoms. The drainage is good, the pain on pressure over the eyebrow has disappeared, the odor though still present is much less, and there is but little discharge. As this patient is over seventy years old, and his cardiac conditions are poor, I am limited to intranasal methods of treatment.

[Since the above was written this patient has apparently perfectly recovered under intranasal syringing of the sinus with 1-8,000 bichlorid solution. The odor, pain and discharge have entirely disappeared.]

If the external operation is decided upon, where shall

the opening be made, and by what means? The question of scar is one not to be lightly passed by, and I am decidedly opposed to such an operation as Hartmann describes, in which, after first making an incision and cutting away the bone in the line of the eyebrow, but underneath the ridge, he then opens at right angles down to the eye, lays aside the soft parts, and cuts away the frontal cells, taking care that he does not remove any of the important muscles or soft parts of the eye. This is undoubtedly effective in laying bare the sinus, but leaves an unnecessarily large opening. He does this only when the simpler operation has not opened the cells sufficiently or brought about a free enough communication with the nose.

From my own experience I prefer always to make the opening between the supra-orbital notch and the root of the nose and underneath the ridge. Whereas the wall of the sinus is comparatively thick at this point, the sinus itself when opened is as roomy as at any place, and the bone opening is easily enlarged upward as far as the upper border of the ridge, and outward, so as to give a sufficient amount of room to enter with a fairly good-sized curette and explore every part of the region. While the frontonasal canal is easily accessible at this point, it is at the same time also the most dependent portion of the sinus. So long as the upper border of the supra-orbital ridge is left, the resulting deformity is practically nothing, as the new growth of the eyebrow takes care of the scar.

Before beginning the operation the post-nasal space can be plugged, to prevent the swallowing of blood. A string should be attached to the plug, one end being brought out through the free nostril and the other out of the mouth. After shaving the eyebrow and properly preparing the surface a circular incision is made from just inside the supra-orbital notch and along the lower third of the eyebrow as far as the root of the nose or a little below. The periosteum is laid back, the bone bared, and an opening made down to the sinus at the centre-point of the incision. The sinus being opened and explored with the probe, the external opening is still further enlarged as in the individual case may seem necessary. When this is done sufficiently a probe can be passed downward into the nose through the natural opening and its direction noted. This

opening is then enlarged with the curette, so as to give all the room that is needed, more of the bony wall of the sinus being cut away if required and in whatever direction needed; and, bearing in mind my own experience, I should urge upon the operator to make a larger opening into the nose than he thinks he needs—in fact the largest opening possible, especially backward and outward, so as to avoid any danger of injuring the lamina cribrosa. Use small curettes at first, and larger ones if needed; those with curved shanks are preferable. The whole area of the sinus that can be reached is to be curetted and its ramifications followed up. The extent and vigor of the curetting will depend upon the condition of the mucosa and the presence or absence of granulations. As far as possible, all of the ethmoidal cells in the immediate vicinity should be opened. When using the curette in the fronto-nasal canal or in the ethmoidal region the little or index finger should be kept in the nostril as a guide, the middle turbinate having been in all cases previously removed.

I have tried gauze wicking of good size as a means of keeping the fronto–nasal canal open, but do not like it as it is very painful to remove. Drainage is best attained by means of rubber tubes slightly fenestrated, one end of which presents at the external wound and the other out of the nostril. These may be changed every other day, the new one being readily attached to the old one by carrying a needle with a long thread twice through each one and leaving the threads, cutting out the needle at the eye. The old tube is then drawn down, the new one follows it, and the threads can be cut off. The advantage of putting the thread through twice and then leaving it long is, that if there is any interference on the way and the rubber pulls the threads might pull out and the following tube be lost; but if the threads are sufficiently long the following tube will not be lost, and the first one can be drawn back in case the second tube will not follow, and a smaller tube can then be used. These tubes should be retained as long as may be necesssry, certainly two or three weeks. After that time if a tube is required it is better to use one of silver, properly curved. At the time of operation a stitch is put at each side of the wound, leaving an opening sufficiently large for the drainage-tube. In cases which

have lasted but a short time, if the opening into the nose is very large, it may do to close the external wound; personally, I prefer to keep it open for a while, when if the case progresses well the tubes can be removed and the opening allowed to close. As the incision is a curved one, when the tube is finally withdrawn the tendency is for the opening to close perfectly, leaving only a slightly depressed scar, completely covered by the eyebrow and not noticeable in any of my cases except on close inspection. When the opening is made on the forehead above the ridge there is more likelihood of an unsightly scar if it cannot be closed at once and perfect apposition obtained; there is also more likelihood of a depression than when the opening is made at the angle of the eye. The only possible advantage of opening above is that the opening down into the nose is rendered straighter. I think, however, that this advantage is more theoretical than real. If the operator were certain that he had removed all of the diseased mucous membrane, and that the outlet into the nose was sufficiently large, the external wound might be closed at once; of this, however, one cannot be sure.

In case the cavity is filled with granulations, Hartmann would take off the frontal wall. As already cited, one of my cases was as full of granulations as it could be, and yet it healed in less time than any of the others; so that it does not seem to me to be necessary to take off the frontal wall.

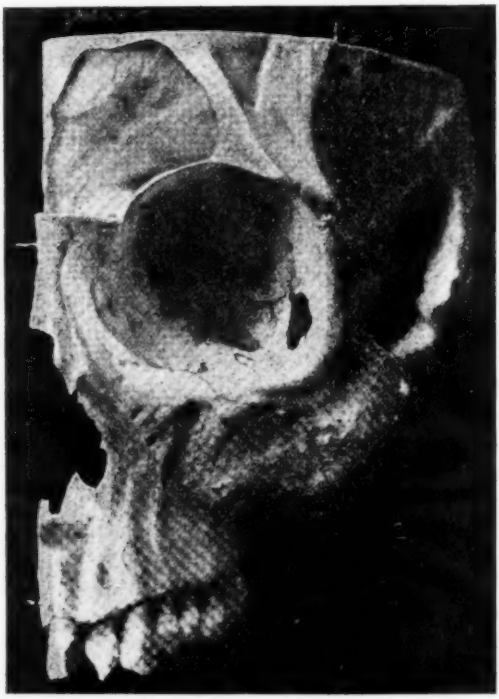
Considerable swelling of the loose tissue about the eye always follows any external operation, but lasts only a few days.

The after-treatment will depend upon how thoroughly the disease can be eradicated at the first operation. In many cases recovery will be prompt and satisfactory; in others final healing will be tedious and long delayed. The pus discharge may come from some of the ethmoidal cells, which in long-standing cases are almost always involved. Re-operation may be necessary, even when the first operation was apparently absolutely thorough. The principles which must be our guide are, remove all the diseased bone and mucous membrane that it is possible to remove, provide free drainage, and have as little remaining deformity as possible. The time required for a cure varies, accord-

ing to the degree of severity of the disease, from a few weeks to several months.

Besides the operations described there are a number of other procedures for the cure of empyema of the frontal

Fig. 5.



Specimen showing large frontal sinus extending backward and outward over the entire roof of the orbit. In case of empyema, operation underneath the supra-orbital ridge and between the supra-orbital notch and the root of the nose would give ready access to the whole interior of the sinus and to the fronto-nasal canal as well. (Author's collection.)

sinus which bear the names of their originators, and which I shall briefly describe, since they appear frequently in literature, and there is sometimes some confusion of terms.

The Operation of Nebinger-Praun. The essential point of this is the wide opening of the anterior frontal sinus

wall. An incision is made from the naso-frontal suture along the orbital border of the supra-orbital notch. The anterior bony wall is laid bare, whatever is necessary, first of the nasal and then of the frontal bone, being chiseled away. A vertical incision, 4 to 6 cm. long, is next made, following the border of the frontal vein. Bone is now chiseled away corresponding to the breadth of the sinus, the horizontal portion being laid bare. After the horizontal portion is laid bare, the purulent contents removed, and the wall curetted, the opening into the nose is enlarged. Nebinger recommends draining the sinus at the place of junction of the horizontal and vertical cuts.

The Operation of Jansen. The chief feature of this operation is the removal of the inferior wall of the frontal sinus, and, in very large sinuses, partial resection of the anterior wall. A curved incision is made underneath and parallel to the eyebrow from the lateral border of the orbit to the side wall of the root of the nose. After loosening the periosteum the superior wall of the orbit is laid bare. The inferior wall of the sinus is next removed. In the case of a very large sinus the inferior border of the anterior wall is also removed. The diseased mucous membrane and granulation tissue are removed with sharp curettes.

While this method gives free access to the floor of the sinus, the opening in the nose is not so readily attained as by some other methods. Having seen some cases some time after the Jansen operation, I am not especially pleased with the ultimate cosmetic results; in one case particularly, the eye on the operated side seemed to sag.

Method of Ogston-Luc. To open the sinus and ethmoidal cells an incision is made along the inner third of the orbital wall, extending about 1 cm. until the root of the nose is reached, the periosteum laid back on one side toward the forehead and on the other from the orbit, and the sinus opened a little to the outward from the median line and mostly above the orbital ridge. After opening the sinus, an opening is next made into the ethmoidal cells, and after establishing a wide communication between the sinus, and the nose a drainage-tube is carried down into the nose and the external wound at once closed.

This operation has many advocates, and is frequently performed. When the external wound is at once closed it

is probable that the resulting scar is very light. In those cases where it becomes necessary to keep the external wound open for a time—and these are quite common—it does not seem to me likely to produce as good cosmetic results as the operation I have described.

Method of Czerny. Czerny makes an osteoplastic flap, enlarges the opening into the nose, tampons with iodoform gauze for a sufficient length of time, and as soon as healing is brought about lays the skin flap, with its attached lamella of bone, on the side of the original wound. This is said to produce good results, without deformity.

Method of Kuhnt. This consist in the removal of the entire anterior frontal sinus wall and the entire diseased mucous membrane, including the upper portion of the fronto-nasal canal. A horizontal incision is made along the inner two-thirds of the supra-orbital ridge; then a vertical upward incision is made at the inner angle of the first incision. After pushing back the soft parts and the periosteum, the entire anterior wall of the frontal sinus is removed with chisel and bone-cutting forceps. The bone edges are left smooth and all septa in the sinus are removed. The entire mucous membrane is next removed from the sinus and from the upper portion of the fronto-nasal canal. A drainage tube is then inserted and the external wound closed with sutures. The after-treatment consists in the daily syringing of the sinus with sublimate solution. The stitches are removed on the sixth or seventh day.

Röpke has modified this operation so as to make a wide passage from the floor of the sinus to the ethmoidal cells, clearing out the latter as far as necessary and then packing the cavity with iodoform gauze. When both sinuses are affected the vertical incision is made in the middle line, and the anterior walls of both sinuses, together with the division line and the prominent portion of the nasal process of the superior maxilla, are removed.

The cosmetic results are said to be good, there being marked depression in only one of Röpke's cases. Double vision was present in three cases, but passed away after a while. Unless the mucous membrane is entirely diseased it would seem almost superfluous to remove every portion of it, since it must all be reformed again for the proper

nourishment of the interior of the sinus unless the sinus is to be obliterated. In this latter case I fail to see how there can help being some deformity after such an operation.

Operation of Killian. This consists in chiseling and curetting the frontal sinus, with temporary resection of the nasal bones.

Operation of Spiess. Spiess opens the frontal sinus intranasally with the drill and the end of a flexible shaft, under the X-ray.

This operation would seem to be a rather difficult one to do, and not entirely devoid of danger, since where there are so many sinuses and cells the X-ray picture might easily mislead. I have seen some of the X-ray pictures of the operation in Dr. Spiess' clinic. Both Dr. Spiess and Prof. Moritz Schmidt regard this method of operating as valuable and certain, since it gives a large opening into the sinus without external opening. So far as I know, this method has not as yet been followed by other operators, at least to any extent.

It would be much simpler if these various operations were described and known according to their anatomic characteristics rather than by the the names of their real or fancied originators. Too many things in medicine and surgery are described in this manner. It seems to me that it is sufficient, and far better, to describe a procedure as such, rather than A.'s, B.'s or C.'s. The reader is then enabled to know what is being described without first looking up a biographical dictionary of medicine.

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XXVI.

TEMPERATURE AFTER MASTOID OPERATION—ANALYSIS OF 100 CASES.

By Thomas J. Harris, M. D.,

ADJUNCT PROFESSOR OF LARYNGOLOGY, N. Y. POST-GRADUTATE SCHOOL; ASSISTANT SURGEON, MANHATTAN EYE AND EAR HOSPITAL.

What significance is to be attached to an elevation of temperature following a mastoid operation? Does it suggest an incomplete operation with retention of pus or of diseased areas of bone, or have our manipulations been lacking in thorough asepsis; or is there, what might be termed for want of a better name, a normally elevated post-operation temperature, due to the same causes, i. e., bacteria, which originally produced the temperature? Every one of us has doubtless asked himself these questions in connection with his mastoid work, and perhaps has had no little anxiety in some important case on this very account.

The danger of generalizing from one's own limited experience is a matter of common observation. The writer has therefore thought it worth while to consult the records of the last 100 cases operated upon at the Manhattan Eye and Ear Hospital. Information was sought along the following lines:

(1). The stay in hospital after operation.
(2). The temperature after operation.
(3). The number of days of elevated temperature.
(4). The day of highest temperature.
(5). The character of the temperature curve.

In each case the record was carefully examined, and only simple, uncomplicated cases selected. This threw out all cases with brain or sinus complication; all with gastro-intestinal or bronchial complication; and any cases in which the notes showed unusual or excessive discharge from the wound. It is to be conceded at the outset that in

some instances the records were not complete, and some systematic cause, such as that proceeding from the stomach or bowels, overlooked; and yet we believe they are as accurate as we can hope to secure in any large hospital.

An analysis of these 100 cases yielded the following results:

1st. In only one case was there a perfectly afebrile temperature.

2d. The average length of stay in the hospital after operation was 14.8 days. This does not mean, of course, that healing took place in that time, but that the case made such favorable progress toward recovery that it could be transferred to the outdoor department.

3d. The average duration of the post-operative temperature was 6.65 days, the range being from 2 to 19 days.

4th. The greatest elevation of temperature occurred in 56 cases, or over one-half, on the second day; in 29, on third day; and in the remaining 15, on the fourth day or later.

5th.

In 28	the	highest	elevation	ranged	from	99-100 F
" 39	"	"	"	"	"	100-101
" 23	"	"	"	"	"	101-102
" 6	"	"	"	"	"	102-103
" 4	"	"	"	"	"	103-104

In brief, in 90 per cent. of the cases, the elevation of temperature did not exceed 102; and in 67 per cent., or over one-half, fell under 101.

These statistics suggest, among others, the following comments:

(a). They represent the work of not one, but at least ten surgeons.

(b). The notes of the house surgeon refer repeatedly, even in the cases with highest temperature, to no complaint from the patient but that "he slept well"—"wound looked healthy," etc. The fact that the highest elevation of temperature so generally occurred on the day following the operation decisively disposes of the theory that it was due to retention of pus and need of dressing; and while it is a common view to ascribe it to acute infection from the

bowels, and to expect a fall from the use of a cathartic, it rests on no secure basis.

In the writer's opinion, the most plausible explanation is that it is of bacterial origin. This could, with a fair degree of confidence, be asserted if a series of cases, sufficiently large, could be studied bacteriologically, the secretions of the wound being examined for a number of days as carefully as is done in many of our clinics before operation.

In this connection the much broader question is raised of our ability to secure complete and absolute asepsis in our operations, and perfect sterility in our mastoid wound. In all work in our New York hospitals, we aim at this, and every surgeon would resent the accusation that he was not surgically clean and aseptic in his methods. We are cognizant of others, however, who do not employ such methods, and do not pretend to do so, and yet seemingly secure the same results, in the same period of time.

Is it possible that there are minute areas, adjacent to and connecting with the mastoid wound, as in the aditus, which do not permit of complete disinfection?

Several writers, among them Politzer and Dench, refer to the posibility of post-operative temperature.

There is always a suggestion that it is but a continuation of the temperature before operation, which is in line with the bacterial origin just mentioned. It is true, however, that we are constantly meeting cases of mastoiditis with little or no elevation of temperature; and not a few of the cases studied in this paper showed their first marked elevation after operation.

One point more—out of the one hundred cases the temperature continued in 56, or over half, less than a week; in 10, three days; in 18, four days; in 12, five days; yet in the remaining 43 it continued for periods varying from six to nineteen days. In 30 an elevation of temperature persisted as long as they remained in the hospital.

It is to be further noted that in the cases with long continued temperatures, there were many in which after the third or fourth day the temperature ranged between 99 and 100, with no high fluctuations, or fluctuated from normal in the moring to 99 at night.

Without further dilating on the various phases of this question, which permit many suggested considerations, we are warranted, we believe, from our study, in making the following conclusion:

(1). Post-operative temperature of moderate amount is customary in mastoiditis.

(2). The cause of it has not yet been definitely determined.

(3). Without other symptoms, it is without significance and should not be a source of anxiety.

XXVII.

AN UNUSUAL CASE OF NASAL GRANULOMA.*

By H. L. Myers, M. D.,

NORFOLK, VA.

ATTENDING SURGEON ON DISEASES OF EYE, EAR, NOSE AND THROAT, ST. VINCENT'S HOSPITAL.

Blanche B., aet. 14, white, consulted me in May, 1901, for nasal stenosis and catarrh with great secretion. Patient anemic, appetite poor, headache, condition generally depressed. Eczematous eruption around ears and on eyelids. Father healthy, mother cachectic—is under treatment at present for uterine disorder, sarcoma suspected; one grandfather died of tuberculosis.

Nasal examination revealed a granular neoplasm almost completely filling both nasal fossæ and extending into the postnasal space and down the posterior and lateral pharyngeal walls. It was also distributed over the posterior surface of the velum palati and uvula. No involvement of larynx. The granular like growth was pale in appearance and bleeding slightly on moderate contact with the probe—never bleeding spontaneously. Flowing over the surface of the growth was a thick, mucopurulent secretion, which was very acrid, causing excoriation of the skin of the nostrils and upper lip. There was no spontaneous pain, in fact, the principal symptom was difficult nasal respiration, which she had begun to notice for about two months previous to her visit to me. The distribution of the neoplasm was general over the mucous membrance lining the nose, but it was thickest along the floor of the nose under the inferior turbinates, and on the posterior thirds of the inferior and middle turbinates, the septum, the nasopharynx and post-pharyngeal wall. The portion occupying the nose was soft in consistency, and easily

*Read by invitation before the Eastern Section, American Laryngological, Rhinological and Otological Society in New York City, March, 1902.

removed with cold snare and sharp curette, leaving a smooth, non-ulcerating surface, which healed kindly and rapidly. The hemorrhage was very slight during operation.

A portion of the growth was submitted to a microscopic examination by Dr. Chas. Grandy, of Norfolk, Va., and he reported that the tissue was made up of small round cells—mostly mononuclear, held together by very little stroma, no tendency to formation of scar tissue, no tubercles, no tubercle bacilli, and that it was more like granulation tissue than any thing else.

Despite the absence of any suspicion of syphilis in the family history or the patient, I determined to try antisyphilitic treatment for a few weeks, and at first it seemed to be having the effect of diminishing the size of the growths and reducing the amount of secretion. This good effect, however, seemed to be but transient, so I began removing the masses with snare and curette, putting the patient at the same time on cod liver oil and iron. As nasal respiration became better established the health improved greatly. Every vestige of growth that could be seen was removed from the nasal cavities, and as much from the nasopharynx and oropharynx as I could get, and the patient was allowed to return to her home feeling almost well again, her only remaining sympton being the viscid discharge which had only partially disappeared. I should state that the scaly eruption disappeared under the specific treatment. Six months later the patient returned for examination. Had experienced no more trouble with breathing, and health had steadily improved. Examination, however, revealed a considerable reappearance of growth on floor of nose and posterior one-third of turbinates and septum. Arsenic exhibited and growth removed as before, and cauterants applied to base. This treatment extended over a period of several weeks, when she was again allowed to return home for the holidays. She returned to me three weeks later, and I found that some of the tissue had recurred over the cauterized area and that her health was again beginning to fail. As before noted, I am inclined to the belief that the growth is of syphilitic origin, or possibly a form of lupus. It has not seemed to me to present malignant characteristics.

XXVIII.

LARYNGEAL CHOREA—REPORT OF A CASE.*

By James Francis McCaw, M. D.,

WATERTOWN, N. Y.,

OCULIST, AURIST AND LARYNGOLOGIST TO THE CITY HOSPITAL AND JEFFERSON COUNTY ORPHAN ASYLUM; FELLOW OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, ETC.

The case which I present for your consideration is one of interest on account of the extremely rare occurrence, as well as from a diagnostic standpoint. The following is a brief report:

L. B., female, aged 15, consulted me in December, 1901, for a constant persistent cough. Mother is of a highly nervous temperament, otherwise the family history is negative. The patient has always been considered a delicate child and allowed to do as she pleased. Began to menstruate about one year ago. The periods have been very irregular and scanty. Near the time of menstruation, one year ago she was suddenly attacked with complete aphonia, lasting for two weeks, at the end of which time her voice returned as suddenly as it had disappeared. Following this, and until the advent of the present trouble, she has suffered from numerous attacks of "sore throat," tonsilitis and nervousness, which incapacitated her for school work. Three months ago she contracted a cold in the head, a few days later a sore throat, slight cough and soreness in the chest with some hoarseness. There was no expectoration and the condition subsided in the course of ten days, excepting the cough which has continued ever since with varying degrees of severity. There are days when the interval between the paroxysms will be lengthened and each paroxysm not so severe. If she becomes excited, irritated or annoyed the cough is aggravated.

*Read before the Eastern Section of the American Laryngological, Rhinological and Otological Society, at New York, N. Y., March 1st, 1902.

Her mother says that the peculiar feature about the cough is that it is almost incessant from the time of rising in the morning until retiring at night, but the child will go to sleep and have a perfect night's rest without the slightest indication of a cough. The condition became so persistent and annoying to both the family and physician, that they were afraid she was suffering from some grave organic disease. So successfully had the cough baffled the best efforts of the family physician that he sent her to me with the possible diagnosis of laryngeal tuberculosis. In his letter he stated that in spite of the prolonged treatment the condition had remained about the same.

Examination: Patient is fairly well nourished, anemic, below the average intelligence, and distinctly neurotic. The cough above referred to has the characteristics of beginning with a low growl and terminating with a distinct loud sharp bark. These paroxysms come on at varying intervals from one to three or five minutes, each paroxysm covering a period of only a few seconds. There are choreic twitchings in the muscles of the arms and shoulders, and the voice is quite hoarse. The inferior turbinate bodies in each nostril are in a state of venous engorgement, dependent, I think upon a small amount of lymphoid tissue in the pharynx. Slight hypertrophy of both faucial tonsils.

Laryngoscopic examination was easily made and revealed a perfectly normal larynx, excepting a slight congestion of the vocal cords, which could be accounted for by the long continued irritation. In further study of this organ, the vocal cords were seen to oscillate between abduction and adduction, this spasmodic condition ending in a forcible adduction of both cords. The freedom with which this examination could be made and action of the vocal cords studied, were to be wondered at, in view of the apparent excessive nervousness of the patient. Heart and lungs negative. I observed this case for one week when she returned home, and have heard nothing from her since.

The points which have impressed me most in studying this history are the importance of exhausting all means at our command in arriving at an accurate diagnosis, as bearing upon the subsequent management of the case and

the ultimate result; and, further, the great value of the laryngoscope in accomplishing the end in this particular class of cases. I can readily understand how any physician, be he ever so careful, may be misled in his diagnosis and fail in his efforts to relieve, unless he is able to study the larynx through the medium of the laryngoscope and satisfy himself, beyond doubt, of the spasmodic and incoordinate action. This is doubly true in cases where there are few accompanying symptoms, especially an absence of choreic twitchings in other parts of the body which might suggest the possibility of a connection, but this manifestation, we are taught, is absent in the majority of cases.

The true nature of chorea is still obscure, as all cases thus far examined by pathologists have failed to furnish any lesions which can be regarded as essential, and we are therefore at the present obliged to classify it as a "neurosis"—or a disease producing functional disturbances for which no anatomic basis is known. In view of this limited knowledge of the pathology, treatment is to a great degree symptomatic, unless we discover some point of reflex irritation, which must, under all circumstances, be removed if we would be successful in our efforts. This has been clearly demonstrated in a case reported by Dr. J. A Stucky, where the patient, a young woman 23 years of age, had suffered from this peculiar barking cough for four or five years. She had been subjected to dilatation of the cervix uteri, later the removal of both ovaries, an operation for relief of vesical calculi and, finally, excision of hemorrhoids. By chance a solution of cocain was applied to both nostrils for the relief of a violent acute rhinitis, when, much to his surprise and to the comfort of the patient, the annoying cough was relieved as long as the effect of the cocain lasted; subsequently both inferior turbinals were cauterized throughout their entire length with chromic acid, which was followed by complete relief.

The treatment applied in my case was rest, regulated diet, and liq. potassii arsenitis in increasing doses, and for the week she was under observation there was a perceptible improvement in her symptoms, and I have every reason to believe that she made a good recovery.

The diagnosis of laryngeal chorea, I think, is justified, first, from the age, sex of the patient and the neurotic history; secondly, from the characteristic noisy, dry bark, which continued with little interruption during the day and ceased during sleep, associated with choreic twitchings in other portions of the body and, finally, from the laryngoscopic findings.

XXIX.

ENORMOUS NASO-PHARYNGEAL SOFT FIBROMA—WITH A GENERAL DISCUSSION OF THE DIFFERENT VARIETIES OF THIS CLASS OF NEOPLASMS.*

By Christian R. Holmes, M.D.,

CINCINNATI, O.

V. S., a woman of ninteen years, was brought to me October 16, 1901, by Dr. A. P. Banfield, of Buchanan, Ky. The patient was brought on account of an enormous post-nasal growth, which had assumed such proportions that it seriously interfered with breathing and swallowing. The doctor had one month previously removed a portion of a large firm mass which protruded externally from the right naris. (At *a*, Fig. 2, is shown what was left after amputation of the mass that projected into the naris).

HISTORY.

Patient is well developed and nourished, and excepting the ordinary diseases of childhood, she has always enjoyed fairly good health. When a small child she had frequent attacks of earache, following upon one of which an acute purulent otitis media developed, which subsequently became chronic, and continued to discharge until three years ago, when it ceased. When the patient was two years of age, her parents noticed that she frequently had difficulty in breathing, nasal respiration was almost impossible, her voice had a nasal twang, and when asleep she frequently had to be shaken or her position shifted to facilitate respiration and to relieve cyanosis; the respiratory

*Read before the meeting of the Middle Section of the American Laryngological, Rhinological and Otological Society, St. Louis, Feb., 1902. To be published in the Journal of Laryngology.

disturbances were thought by the family to be due to enlarged tonsils.*

From this time on embarassed respiration and frequent cough, and of late years difficult deglutition, were the principal signs of some abnormality of the nose and pharynx. In January, 1901, she contracted a severe case of la grippe, and from that time to the present all of these symptons

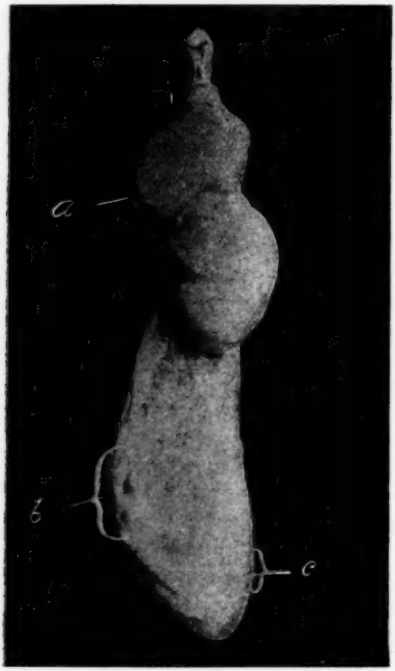


Fig. 1.—Side view.
a, stump of nasal mass removed; *b*, adhesions to base of tongue; *c*, adhesions to posterior wall of pharynx.

have been much aggravated. At no time had she any severe pain or bleeding from the nose or throat; but swallowing, breathing and the use of the voice became constantly more difficult, until now, unless care is exercised and time given, food will be returned from the pharnyx

*Just when the growth first extended into the pharynx, patient is unable to state. Coming from an illiterate family of mountainers, such a lesion was no doubt only noticed after it began to seriously inconvenience her.

through the nose and speaking, or even breathing, while lying on the back is well-nigh impossible. Even when in an erect position the breathing is so noisy that it can be heard in an adjoining room; the secretion from the nose and pharynx is very abundant; her voice is low, and of a peculiar guttural quality.

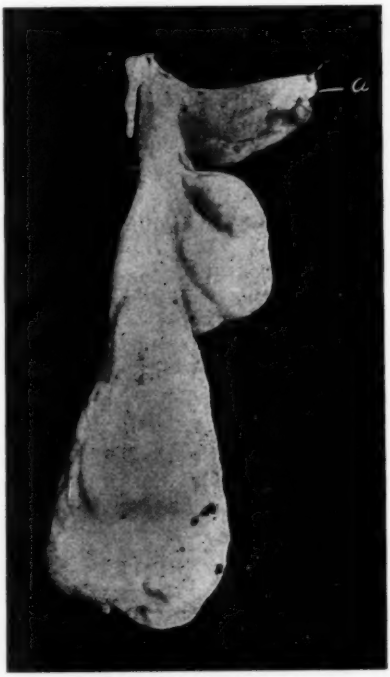


Fig. 2.—Front view.
a, stump of nasal mass removed.

On examination it was found that almost the entire pharyngeal space was filled with the mass of a pendulous tumor, apparently hanging from the right side of the vault. The examination found it of a very soft consistency, with smooth surface, and of a pale, grayish color.

Its horizontal diameter was sufficient to almost entirely fill the pharynx from pillar to pillar, completely obstructing any view of the posterior wall, and pushing the soft palate far forwards, the uvula lying almost horizontal,

with its tip pointing to the left. The tumor mass extended downwards, below the base of the tongue, coming in contact with the anterior and superior surface of the epiglottis, preventing the latter from rising more than about 45 degrees from the plane of the entrance to the glottis, as could be made out by the use of a small mirror through the slit-like passage on the left side.

A large blunt hook could readily be passed behind the tumor, but it was found impossible to raise the growth. I first thought this was due to the fact that the mass was club-shaped, and the tumor too firm and thick to bend upon itself; but, under cocain, adhesions were found between the tumor and the base of the tongue, and between the tumor and the posterior wall of the pharynx, about on the level with the epiglottis. These adhesions were very firm, making it necessary to resort to chloroform to complete the examination and perform the operation.

OPERATION.

The anesthetic (chloroform) was given with some difficulty on account of the already embarrassed respiration. The adhesions were separated by a strong blunt hook and the finger, the growth lifted out of the lower pharynx, the base of it thus protruding outside of the mouth, where it was grasped with the fingers of an assistant. A loop of No. 6 piano wire was then slipped over the mass and up to the pedicle, but the latter was composed of such dense fibrous tissue that the loop broke in the first attempt to cut it through. The tumor was then grasped in the hand and twisted upon its long axis until gave way at its point of attachment (a puncture, followed by an incision, having first been made into the mass to determine its vascularity and the probable danger from hemorrhage). The removal of the growth was followed by free hemorrhage, which, however, lasted only a short time.

Rhinoscopic examination the following day revealed the point of attachment to have been above and anterior to the mouth of the Eustachian tube, a little below the posterior end of the middle turbinated. The right naris was very roomy, no doubt due to pressure from the projection which grew into it.

Recovery complete, leaving no trace of the original seat

of the growth, and up to date, February, 1902, there has been no sign of recurrence. The specimen was placed in

Fig. 3.—Section of surface layers.

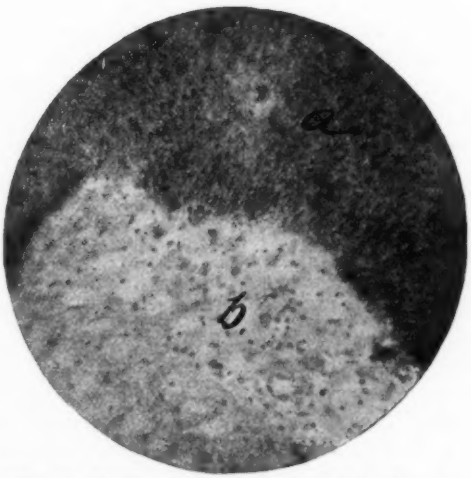


Fig. 4.—Section of superficial and deep layers.

Kaiserling solution and handed to Dr. J. E. Greiwe, Director of the Clinical and Pathological Laboratory of the Cincinnati Hospital, whose report I give below.

PATHOLOGICAL LABORATORY OF THE CINCINNATI HOSPITAL.

The large naso-pharyngeal growth which you sent me for examination I find to be a rather firm mass, of irregular outline, having a distinct pedicle, and showing evidence of having undergone constriction in some parts, and showing, furthermore, evidence of pressure in other parts.

The surface is slightly granular (like shagreen) and the whole mass of a yellowish-white color. The surface shows no macroscopic evidence of ulceration, but near the lower extremity the epithelium is abraded over an area of 5 x 20 mm., and on the anterior surface another 5 x 10 mm. (areas of adhesion to posterior wall of pharynx and base of tongue, *b* and *c*, Fig. 1).

Microscopically I find that the tumor is covered by several layers of epithelial cells. (See Figs. 3 and 4). The upper layers of epithelium are more or less flattened and somewhat elongated. The cell body and the nucleus of the upper layers stain very faintly with hematoxylin. Deeper down the epithelial cells are very well preserved and normal in every respect.

Immediately beneath this layer of mucous membrane I find an area occupied by small round cells with single nuclei and cells more or less spindle-shaped, with well-stained nuclei, lying in a delicate meshwork of fine fibres, which also supports numerous delicate capillaries (*b*, Fig. 4).

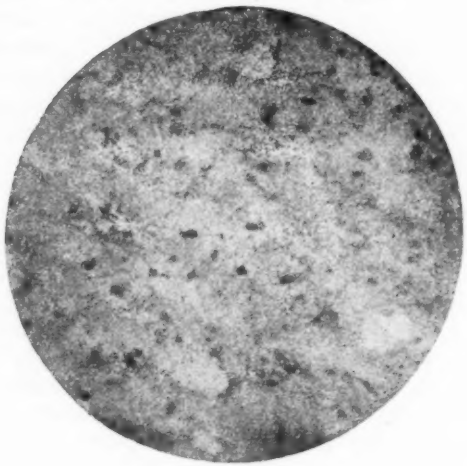
Immediately beneath this submucous layer can be seen denser bands of fibrous tissue, closely packed together (Fig. 5), and in this firm mass of wavy fibrous connective tissue are cells which are for the most part stellate in character, with distinct nuclei and delicate tapering ends, which can often be followed as delicate wavy fibres for a considerable distance from the cell itself.

Close to the submucous layer the fibrous tissue is very closely packed together, but toward the central portion of the tumor the fibrous bands are more or less widely separated (Fig. 6), and each delicate little fibre is clearly separated by a space occupied by a homogeneous mass, which on macroscopic examination appears to be a gelatinous substance. The soft tissue is rather rich in capillaries, whose endothelial lining is well preserved. The capillaries are often surrounded by a number of small cells.

Diagnosis: Soft fibroma arising from the submucous connective tissue.*

J. E. GREIWE, M. D.

Fig. 5.—Section of deep layers.



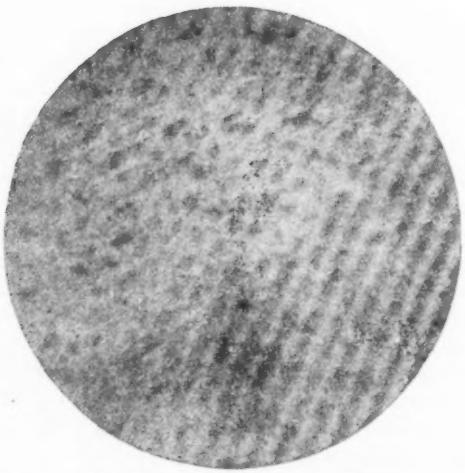


Fig. 6.—Section of deep layers.

* The fibrous layer covering the roof of the pharynx and pterygoid plates, and extending for a short distance over roof of nose, and lower and posterior surface of the upper turbinated bones.

The name polyp was given by the ancient writters to certain tumors from their similarity to the cuttle-fish (sepia), these growths being found upon various mucous membranes of the body, as the bladder, uterus and intestinal tract, as well as in the nose; the latter place being a common seat of these neoplasms. The word "polypus" has been specially applied to the pedunculated mucous neoplasms of the nose (Schleimpolypen), but the name has also been extended to fibrous growths, including those of the naso-pharynx.

These growths have been mentioned in the earliest writings; the works of Hippocrates contain mention of five cases of tumors of the nose. The name has been retained through the centuries, and late authors—Morrel Mackenzie, Hopmann, Zuckerkandl, and others—have still retained the word as a general name for all non-malignant nasal tumors.

Polypi have their origin in the mucous membrane, springing from the latter by a more or less constricted pedicle, the structure of the mucous membrane being reproduced in various proportions in the new growth.

While as noted an author as Heymann[4] is still in favor of retaining the word polypus, and classifying the growths according to their shape, it seems to me that a classification according to their histologic structure, as advocated by Zarniko, Zuckerkandl, Hopmann and others, is not only scientific, but much more in keeping with our knowledge of to-day. According to this classification we must use the term fibroma, which includes not alone the above-mentioned mucous polypi, but also fibromas as found in the pharynx, etc. These fibromas belong to the class of tumors that spring from the mesoblastic layer (connective-tissue growths), and are classified as follows:

A. Edematous fibroma, as found in the nose, classified according to their microscopic structures into—

1. Fibroma edematodes simplex.
2. Adenofibroma edematodes.
3. Fibroma edematodes cysticum.
4. Fibroma papillare.

B. Fibroma of the naso-pharynx.

The last-named growths are, histologicallY, entirely

distinct from the edematous fibromas (mucous polypi) found in the nose. Mucous polypi are products of the mucous membranes, resulting from increase of, and new formation from, the tissues which go to make up the normal membrane. It is still a mooted question whether these growths are the result of an inflammatory hyperplasia, or are really new growths. There always exist inflammatory changes in the immediate vicinity of the growths, but whether preceding the polypus, and thereby leading to its formation, or only a result secondary to the irritating presence of the growth, is also still to be proven.

The fibroma of the naso-pharyngeal space is a different tumor, and a vastly more serious growth, springing from the periosteum or fibrous layer, and is usually extremely hard. They grow steadily, and having filled the space in which they have their origin, they invade other cavitives, after causing resorption of the bony structures intervening, sending out arms in various directions along the lines of least resistance, thereby producing the characteristic deformity of countenance designated "frog-faced." Hence they were also likened to the polyp or cuttle fish by older writers. At times there results, from pressure and friction due to movements of the growth, ulcerations on its surface and on the surface of the opposing membrane, which generally terminate in circumscribed areas of adhesion. But notwithstanding this intimate connection, there is never infiltration of adjoining tissue, the nourishment of the growth coming entirely from its point of origin through its pedicle or base. This explains why, after cutting off this blood supply, all of the tumor disintegrates, no matter how extensive its adhesions may be. These growths may or may not be very vascular. In the vascular variety there is frequent hemorrhage resulting from rupture of the numerous blood vessels found near the surface of the growth. These hemorrhages may endanger life, either on account of their quantity or frequency.

The typical naso-pharyngeal fibromas are very rare growths, and the extra-pharyngeal still rarer than the intra-pharyngeal (8 to 61 in the statistics of Bensch).[6] They are found much more frequently in the male than the female, and between the ages of ten and twenty-five

years rarely before or after this period. Bensch[6], cited by Zarniko[2], has advanced the following theory in order to explain the cause for these periods of immunity:

"1. The congruent or correspondent development of the skull in both sexes during childhood results in the equal frequency of the naso-pharyngeal polypi in either during the early years.

"2. The divergence of the development of the skull bones of the face in the male from that of the female at the time of puberty explains the difference in frequency of this affection in both sexes.

"3. During the developmental period, for unknown reasons, the periosteum may become unable to form bone over a circumscribed area, and the physiologic increase of nutrition incident to the development of the body at this period causes an equal amount of nourishment to be carried to this circumscribed area, which, not being used up in the formation of bone, leads to hypertrophy of the periosteum at this point, and consequent development of the fibroma."

The arrest of the development of the skull after the twenty-fifth year, when this increased nutrition ceases, explains the cessation of development in these growths at this time, or they may gradually disappear spontaneously, as has been observed in a few cases where the growth had either been incompletely removed or not operated upon. This is well illustrated in the following cases quoted by Bosworth:[16]

"CASE I.—A young man, aged twenty-two years, came with an enormous naso-pharyngeal fibroma, impinging upon the base of the tongue, while at the same time sending a prolongation into the nasal cavity. The great dyspnea, and the repeated attacks of severe hemorrhage, had resulted in such impairment of the general health as to render any radical operative procedure hopeless. An attempt was made to modify the growth by electrolysis injections and caustic applications, with but little success, although the patient's life was prolonged for six months, when a rapid extension of the tumor occurred, giving rise to exophthalmos, with symptoms of brain pressure. The case being regarded now as utterly hopeless, all measures of treatment were abandoned, upon which there super-

vended a process of reabsorption, resulting at the end of two years in the complete disappearance of the tumor, and an entire restoration to health.

"CASE II.—A boy, aged fourteen, suffering with a naso-pharyngeal tumor, completely filling the upper pharynx, and extending to and pressing upon the soft palate, closing both posterior nares. Several operations were attempted without success, and finally Grynfeldt [100] performed partial resection of the superior maxilla. He only succeeded, however, in removing a portion of the tumor, although making several attempts at different times. Operative procedure being abandoned, the boy was dischrged, reappearing, however, seven years later, perfectly restored to health, when an examination revealed a small dense tumor in the pharyngeal vault, about the siz of a pea, at the site of the original neoplasm."

The symptoms of these growths are alterations in the speech, due to nasal obstruction; frequent nasal hemorrhage and resulting anemia; occasionally an unpleasant odor from stagnation of the secretion and resulting ulcerations; displacement of the nasal and facial bones, and one or both eyes, with resulting exophthalmos and disturbance of vision; neuralgia, etc. If not removed the neoplasm may enter the cranial cavity by erosion of its walls, or it may extend downward into the pharynx, interfering with deglutition and respiration, death resulting from choking, inanition or cerebral involvement, unless the second period of immunity (the twenty-fifth year), with resulting arrest of development and retrogressive metamorphosis, arrives before the growth has advanced to this stage.

We must now consider a second and third variety of the naso-pharyngeal fibromas or atypical form of these growths.

(a) Non-typical Hard Fibromata.—These may histologically and anatomically be identical with the typical form, but differ clinically in that their growth is not limited to the period above mentioned. They consist generally of only a pharyngeal and nasal process; spontaneous bleeding and ulceration are the exception, and not the rule. They are of very slow growth. Between this type and the mucous polypi of the nose, Zarniko has described a third variety which Panas has designated as choanamargin-

polypi (myxofibroma, fibro-mucous fibroma, soft fibroma). These spring from the edges of the choana or posterior nares, or the immediate vicinity, or even the posterior ends of the turbinated bodies, generally by a small pedicle. They may attain an enormous development, but bleeding and resorption of adjacent structures from pressure is rare in this variety, while it is the rule in the true fibromata. They also reached to the larynx.

Störk [20] and Zaufal [21] have both reported such cases. Störk's specimen was 9 cm. long, and measured 10.5 cm. in circumference, while Zaufal's was 11 cm. long, 6 cm. broad, 3.5 cm. thick, with a circumference of 14 cm., and sent a prolongation 5 cm. long into the left naris.

Dr. J. Mikulicz[7] states that the soft fibromas of the pharynx are rare, even more so than the more firm fibrous variety, and that they may reach the size of a pigeon or even a chicken egg, but are as a rule much smaller. They generally have a long pedicle, "shaped like the clapper of a bell" (Bouilloud).

Prof. Dr. Moritz Schmidt[9] found the naso-pharyngeal fibroma thirteen times out of 32,997 patients, or once in every 2,438 cases. As a rule, the affection is much more frequently found in the male, although his cases were exceptions. Of the thirteen cases, seven were in the male and six in the female. He describes the fibroma as frequently ulcerating on its surface, perhaps because they are generally poorly supplied with capillaries, and the blood supply is mostly carried by small arteries. As a result the hemorrhage may be very violent; the ulcerated surfaces often lead to adhesions, which complicate the operation for removal, although in the nose, where there is frequently found a finger-like projection, he has never seen adhesions, which would argue that the adhesions are perhaps only due to the friction which such a tumor must be subjected to by the act of swallowing, coughing, etc.

The naso-pharyngeal fibromas that spring from the vault of the pharynx are to be regarded as the most dangerous because of their greater vascularity, and in some cases the origin is to be looked for in deeper structures. Karl Hirschberg[226] regards these as "Reste" (remains) of the cord, and has reported two cases, one growing out from the fossa spheno-palatina, developing outward and in-

volving nearly all of one-half of the skull. The other sprang from the sphenoid bone. He describes them microscopically as being remnants of the cord, in one case having more of the appearance of sarcoma, while in the other that of fibroma or fibro-sarcoma. He regards them as non-malignant, as they do not infiltrate other issues. They destroy only by usur.

Bensch has aptly put it that they are "clinically and not anatomically malignant." Mikulicz and Michelson[11] describe and figure in their beautiful Atlas one case each of soft fibroma and fibro-sarcoma, "basis-fibrom" springing from the roof the pharynx, each being about the size of a walnut. The soft fibroma occured in a woman twenty years of age, was movable, and sprang from the posterior end of the septum narium. It was removed, and control-examination one year later revealed no trace of recurrence.

The fibro-sarcoma occured in a boy of seventeen. It was the color of normal mucous membranes, a smooth, hard mass attached to the roof by a broad base. In this case electrolytic and galvano-cautery treatment was resorted to thirteen times, at the end of which only a portion of the lower end ot the tumor had been destroyed. Patient did not return for several months, when a radical operation was determined upon, result not given.

Moritz Schmidt state that "the fibroma consists of connective tissue and elastic fibres, with a more or less liberal blood supply. When the growth springs from the naso-pharyngeal space, it often contains round cells in addition to the above, and is designated as fibro-sarcoma, which, however, has none of the malignancy of a sarcoma."

If the growth is of a pale gray color, pedunculated, it is likely to belong to the soft mucous fibromas, and can readily be removed without any danger of serious hemorrhage. But if the color is that of the surrounding mucous membranes, or a pale pink or rose color, and the growth very firm to the touch, and not readily movable, if at all, forming one large, rounded, smooth mass, with or without a projecting mass entending into the naris, with a frequent history of hemorrhage, then there can be little doubt that we are dealing with a hard true fibroma. It is, however, not always easy to differentiate this growth from a sarcoma. The latter is, as a rule, of a pinkish-yellow color, generally

presenting an irregular, rounded or lobulated aspect, and of a soft, pultaceous consistency upon palpation. But the only safe way to differentiate is by removal of a small piece for miscroscopic examination.

TREATMENT.

Removal is the only treatment that can be considered, but authors differ somewhat as to the manner of procedure, as the following extracts will prove. Operative treatment upon nose and pharynx has made marked progress with the advent of cocain, and the rhinologist has attained a profiency for operating within the narrow confines of the nose and throat never acquired by the general surgeon, as is proven by the following translations from the recent text-book of so high an authority as Dr. Franz König,[18] Professor of Surgery and Director of the Surgical University Clinic at the Charitè in Berlin. In his text-book on special surgery, under the heading of the treatment of pedunculated growths of the naso-pharynx, page 320, he says: "Soft mucous polypi located in the upper portion of the nose can only be thoroughly removed by splitting the nose in the middle or through a temporary resection of the middle after the well-known method of Langenbeck or Bruns," and he then proceeds to describe the method of their removal by a very sharp spoon, the polypi being guided into the spoon by the index finger of the surgeon, which has been passed through the mouth of the patient and up behind the soft palate(!). Such heroic measures being resorted to for simple polpi, we, of course, expect that for the naso-pharyngeal fibromas he would advise the most serious methods of operation. To show the seriousness of the operation he quotes Dieffenbach, who wrote "that great courage is required to undertake this operation, because the surgeon is almost compelled to choose between one of three conditions—choking to death of the patient during the operation, bleeding to death at the time of the operation as a result of tearing or cutting them out, or not finishing the oporation."

These serious conditions result from the difficulty of reaching the seat of the growth.

While König[18] also speaks of the cold snare and cautery loop as efficient for operations upon these growths, yet the

very fact that in a recent text-book such measures as the splitting of the nose or temporary resection of the upper maxilla for the removal of the ordinary mucous polypi should even be mentioned, proves that intra-nasal and pharyngeal non-malignant growths should be operated upon by the rhinologist instead of the general surgeon, because of the greater dexterity which the former acquires by daily practice within the narrow confines of this area.

The treatment of the fibromata and fibro-sarcomata by electrolysis was first suggested by Nélaton[50] in 1864.

The number of treatments by electrolysis that some of the reported cases have been subjected to is very large. Thus Prof. Van Bruns[69] reports a growth cured in a young man after 130 sittings, at intervals of two or three days. Michel[155] reports cure in four cases, each of which required fifty-three, forty-seven, ninety and forty-seven sittings respectively. Moritz Schmidt[9] favors the treatment by electrolysis, using a current of from 30 to 40 M. A., each sitting of from ten to twenty minutes' duration, and states that from ten to twenty or even one hundred sittings may be required in special cases, the rapidity of treatment depending largely upon how the blood supply can be cut off by destruction of the large nutrient vessels in the pedicle. The galvano-cautery was one of the early means resorted to for the cure of these growths, and Prof. Middeldorpf[31] was the first to propose and execute this method in 1854.

The careless use of forceps and too forcible grasping, pulling, twisting and tearing these growths is not without danger, as shown by Forster,[64] in a case cited by Cohen[17]:

"The patient was ninteen years of age and had a large growth filling the left nostril, firm, fleshy and fibrous, and covered with mucous membrane. The right nostril was not much interfered with; there was no swelling of the face or fulness of the palate, nor any projection into the throat. Chloroform was given, and a wire snare was put around the growth, which broke off and caused it to bleed profusely. Forster then made another examination, and having passed his finger up the nostril, found an enormous growth which could not be circumscribed, but large portions of which he tore away with forceps. Four days after the operation the patient suddenly became unconscious.

The right half of his face was numb, and though he rallied, he was never able to speak—except to say "too-too." The temperature rose to 102° F. He had three convulsions on the seventh day and became totally unconscious, and died twelve days after the operation. The post-mortem examination showed general arachnitis and sloughing of the brain above Broca's convolution. That portion of the growth which had not been removed occupied the left side of the external base of the skull, and filled the base between the greater and lesser wings of the sphenoid, the orbital plate of the frontal, and the cribriform plate of the ethmoid bone was broken, and at the back there was a small opening about a quarter of an inch in diameter, and a fracture extending forward from the opening. Microscopic examination showed the growth to consist of small fusiform cells and stellate connective tissue."

In addition to electrolysis and the galvano-cautery, the cold snare and galvano-cautery ecraseur are most valuable instruments at our disposal in the removal of these tumors.

Where the patient is not seen until his vitality has been weakened by frequent hemorrhages, the rapid radical operation must be resorted to by the natural avenues, if possible; but if not, then by splitting the soft palate according to Levret, or, in extreme cases, temporary resection of the superior maxilla after von Langenbeck, or Rouge, Chassaignac, Ollier, or one of the numerous operations devised to reach the naso-pharyngeal space, for detailed descriptions of which see works on general surgery.

A typical case of naso-pharyngeal fibroma, which died under the anesthetic, has been reported by Dr. Thomas M. Stewart[22]. An abstract of his report of the case is given below, with a picture of the patient showing the typical frog-face (see Fig. 7).*

"*History.*—Five months previously the left eye was noticed to be protruding from its socket. No medical attention was given the child until after the condition had lasted six months. There had been no pain at any time.

*I am indebted to Dr. Stewart for the negative. Unfortunately, the tumor and microscopic slides were destroyed by fire in his laboratory.

Post-nasal hemorrhages had also been noticed at about the time exophthalmos was first noted.

Nasal respiration was good before the eye protruded, but it was less free progressively after the protrusion of the eye. The patient was one of four children (all girls); one sister died in infancy. The mother is a large woman, and has had considerable trouble with frequent enlargement of the cervical lymphatic glands. Father is a large,

Fig. 7.—Showing the "frog-face" deformity.

strong man, and his personal history was good. There had been frequent hemorrhages from the nose.

Examination.—Left eye protruded straight forward; restricted excursions in all directions; fundus examination showed a white nerve, small arteries, and large tortuous veins.

The left orbit felt free to the finger except at the inner side, where a hard protuberance was detected; the protuberance extended back as far as the finger could reach. Needle passed into it, excluding a bony growth.

The left nostril was filled by a large, smooth, pinkish

growth, from front to back, pushing the septum into and occluding the right nostril.

The growth bled easily; cocain had no reducing effect upon it; no attachments to septum were found. Pieces of the growth removed for microscopic examination, pronounced fibroma.

Operation.—The parents reluctantly consented to an operation only after seeing the horrible frog-face develop. On December 15, 1898, the patient was brought to the operating-table in the Ohio Hospital for Women and Children, having been in the hospital some twenty-four hours previously.

The left nasal cavity was opened by the Burns operation, and the tumor removed by the wire ecraseur. Hemorrhage was controlled very largely by actual cautery. As the operation was about completed the patient gasped and never returned to consciousness, though strychnin hypodermically, artificial respiration, sphincter dilatation and the electric current were tried in vain.

Post-mortem.—In addition to the mass completely filling the left nasal cavity, pushing the septum into and occluding the right nostril, and pushing the nasal bones out, thus giving the frog-face appearance, we found the cribriform plate of the ethmoid raised up and as thin as tissue paper, so that a portion of the growth one-half inch in diameter projected in a rounded mass into the cranial cavity. There was no evidence of cerebral inflammation. The orbit was also filled by a pushing out of the os planum of the ethmoid. The growth appeared to spring from the upper margin of the left posterior naris, also filling the upper portion of the naso-pharyngeal space on the left side, but did not extend downward so as to encroach npon the left soft palate."

While death from chloroform may occur under any condition, yet it is well enough to bear in mind when operating upon this class of cases, that on account of the frequent and often excessive loss of blood, the resulting anemia may lead to defective nutritive supply to the muscle-cells of the heart, by impairment of the oxygen-carrying power of the blood.

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ABSTRACTS FROM CURRENT OTOLOGIC, RHINOLOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Successful Operation upon a Case of Brain Abscess Following Suppurative Middle Ear Disease.

FREDERICK L. JACK, Boston. (*Boston Medical and Surgical Journal*, Dec. 26, 1901.) The case was that of a man 25 years of age, whose left ear had troubled him for three years. Discharge had then ceased up to six months previous, when it reappeared. He was admitted to the hospital for frontal headache and pain in the ear. Mastoid was tender but not swollen. There was a small amount of pus in the auditory canal. The hearing for the voice was reduced about one-half. The headache became more severe, but the mastoid tenderness gradually disappeared. Temperature fell from 101 to 99. A paracentesis had been done on entrance to the hospital, but seven days later the patient had a chill, complained of intense frontal headache, and the temperature rose to 102. There was no tenderness over the mastoid.

Operation was done and the bone found much sclerosed as far as the antrum, which was filled with pus. Granulations and purulent matter were found above and posteriorly. The bone was removed from the middle fossa for a distance of over one inch in length and a half-inch in breadth and the lateral sinus exposed for about an inch. The dura was normal in color, without bulging, and the wall of the sinus showed nothing abnormal. The incus and masses of cholesteatoma were removed.

Patient did well for a few days, but on the eighth night after the operation he was found pulling and pushing the bedclothes, and could not be roused. Temperature was 93; pulse 102, thin and wiry. Convulsions soon appeared in hands and arms. Temperature rose to 103, and the pulse fell to about 60. Patient became quiet and deeply comatose. This condition continued for several hours, when the wound was reopened and enlarged by an incision upward over the squamous bone and posteriorly for about

two inches toward the occipital protuberance. The bone was removed so that a larger surface of the middle cranial fossa was exposed than at the previous operation. There was no opening in the dura, but it bulged outward over the tegmen. A hypodermic needle was passed twice upward into the brain, pus being withdrawn the second time. A narrow incision was then made over the tegmen, passing about one inch into the brain in the direction taken by the needle, and this opening enlarged by forceps, and over four ounces of foul pus and sloughing brain tissue evacuated. The abscess cavity was irrigated, then wicked with a small piece of iodoform gauze, and the wound over the skull partly closed by sutures. The temperature rapidly fell. The wound was dressed daily, and two days after the operation the patient recognized his attendants. During the next four days there was considerable headache, and at times he was roused with difficulty. The discharge of pus became less, while the brain itself bulged somewhat into the mastoid wound.

Aphasia next developed, and the patient was unable to name an object when shown him, but repeated the name when told him. Symptoms of imperfect drainage appearing, the abscess cavity was enlarged with blunt scissors and about two ounces more of very foul pus evacuated, after which recovery was uninterrupted.

In reviewing the case the author asks the question: "Should the brain have been explored for the abscess at the time of operation upon the mastoid?" and, in the absence of symptoms pointing toward the brain, answers the question in the negative, although he says that the abscess undoubtedly existed at the time of the first operation and was the cause of the headache. He does not think that the usual practice of trephining or opening by the chisel over the ear is invariably necessary, as he had no trouble in draining through the tegmen tympani, and thereby avoided the danger of hernia. If the opening through the tegmen should not afford sufficient room, the external opening is to be made.

A study of the aphasia persisting during the convalescence of this case, by Dr. George L. Walton, of Boston, accompanies this article. *Richards.*

A Case of Otitic Brain Abscess; and the Lessons Which It Obviously Teaches.

ROBERT LEWIS, JR., New York. *(Medical Record,* March, 1902.) The patient was a young woman 23 years of age, with an old foul purulent discharge from the left ear since childhood. For ten days previous to being seen by the author she had chills, vomiting, fever and delirium, followed by facial paralysis, drowsiness and amnesic aphasia. On admission to the hospital the temperature was 103 $^1/_2$; pulse 108. There was abundant foul discharge from the external canal, and tenderness over the antrum and tip.

A radical operation was done, and the antrum found to be filled with foul-smelling discharge, partly cholesteatomatous. There was necrosis involving the wall of the sigmoid sinus, which was exposed for a distance of one inch, and found coverd with foul-smelling pus and granulation. From the tegmen tympani there was a fistulous opening leading into the cranial cavity. On the removal of the tegmen a tablespoonful of foul-smelling pus flowed out. The greater portion of the squamous portion of the temporal bone was removed. The exposed dura was blackish in spots and bathed in pus, and was walled off by adhesive inflammation from the healthy dura. An incision was made into the brain to a depth af about three-quarters of an inch in an upward and forward direction, and at the point where the dura showed the greatest tension. An abscess cavity about the size of a large walnut, lined with a distinct membrane and containing disintegrated brain material and pus, was thereby opened. Syringing was not resorted to; the cavity was wiped out with pledgets of gauze, and sterile gauze packing was used, sutures being employed for closing the upper portion of the wound.

During convalescence the temperature did not rise above 100, and the after-treatment was uneventful, with the exception that after the disappearance of the aphasia and some six weeks after the operation a small abscess developed in the anterior extremity of the wound. This was opened under ether. Twelve weeks after the operation epidermization of the tympanic cavity had taken place, and the external wound had entirely healed.

This case is of special interest as showing the dangers

of a chronic discharge from the ear which may at any time cause severe symptoms. *Richards.*

A Conservative Element in Acute Mastoid Surgery.

EDWIN W. PYLE, Jersy City (*The Medical News*, Jany. 18, 1902), gives his deductions drawn from a case of mastoiditis which recovered without operation. Although the symptoms were grave, nevertheless operation was refused, and after a while complete recovery followed a course of douching and massage, which later dislodged the pus from beneath the fascia into the external canal. The recovery, so the author states, was "more perfect than could have been wrought by surgery."

(The few cases of this kind which are occasionally reported do not offset the number that fail to get well; nor should the fact that acute otitis media in the majority of cases usally gets well, blind us to the potential dangers of an acute mastoiditis, even though, as the author states, general practitioners of large experience may have seen but few such cases—Reviewer). *Richards.*

Some Aural Complications of Influenza.

S. MACCUEN SMITH, Phildelphia. (*Philadelphia Medical Journal*, Jan. 11, 1902.) Acute middle ear inflammation and acute mastoiditis are considered, the latter only with reference to early diagnosis. The treatment of acute middle ear inflammation coming on in connection with influenza should consist of absolute rest in bed, with free diuresis and properly conducted diaphoresis. Hot antiseptic solutions syringed into the external canal are useful, but medicated drops are of no value. Should the syringing fail, to relieve promptly, free incision of the tympanic membrane, followed by antiseptic irrigation and gauze drainage, should be performed. *Richards.*

Modern Mastoid Trephining Operations, With Notes on 100 Recent Operations.

ALEXANDER RANDALL, Philadelphia. (*American Journal of the Medical Sciences*, April. 1902.) While the author regards the danger of operation as being not much more than that of etherization it self, he nevertheless says that we should as yet be cautious in urging operation for mere suppuration without disquieting symptoms, and only after full effort has been made to improve the general and local health,

should we decide that tympanic exenteration is needful. He regards the thorn-like suprameatal spine as the most reliable landmark, close behind which is the typical point for opening the bone, and reminds us that "The floor of the cerebral fossa may be no higher than the spina, but can hardly be lower; the knee of the sigmoid sinus may come thus far forward, instead of lying on the average ten milimeters back and up; the antrum may be but a millimeter within the cortex in an infant, or an inch away in the adult with a large mastoid; yet in general we can safely chisel onward, forward and upward from a point close behind the spina, and at a depth of some fifteen to twenty millimeters should enter the autrum. Remembering that this cavity lies up and back from the canal, separated from it only by a wedge-shaped partition of bone, we have a constant guide to it furnished by a probe in the canal, the roof of which is about level with the floor of the antrum.

"As there is no means of foretelling the relation of the lateral sinus to the operative field, it is essential to safe work that we employ, instead of any blindly-entering boring device, the chisel or spoon, which enable us to remove scale by scale of the bone without risk to the underlying structures."

For radical operation he prefers the method of Stacke to that of Kuester or the Schwartze–Stacke operation. In making the flap the suggestion is given that the cartilaginous portion should be exsected in forming it, since the cartilage of the canal is useless for grafts, melting down itself, often involving in its necrosis the better tissues.

Three to seven days in bed, with infrequent dressings dependent upon pain, fever, discharge and odor, and as much longer detention in the house, usually suffices.

Facial paralysis, he thinks, should occur but rarely in careful hands, unless caries already surrounds the nerve. Even then recovery usually takes place in from six to twelve weeks.

The removal of the drumhead and ossicles has proved of little value for the inprovement of hearing, but simply conserves what has been left by the suppuration.

Of the 100 cases, 49 were simply antrum operations for acute lesions; 30 were radical tympanic mastoid exenterations; 12 were done after the Stacke method of tympanic

exenteration for chronic suppuration without mastoid caries. There were 11 deaths in the 100; three were children who died of pneumonia and other unrelated conditions; two had fatal meningitis present before operation which was unrelieved by the removal of the primary focus of infection in the temporal bone; two succumbed to pyemia from lateral sinus thrombosis; one to brain abscess which had been found and drained: and one to recurrent cerebral apoplexy. Early operation can do much to prevent the occurence of these fatal complications. *Richards.*

Some Cases of Otitic Pyemia Cured without Operation.

WALTHER SCHULTZE. (*Arch. für Ohrenheil.*, Bd. 53.) The first case was one of true sinus thrombosis, for which only a Schwartze was performed since there was diffuse caries of the labyrinth wall which either way gave a bad prognosis. In the second case an otitis media was followed by septicopyemia with septic endocarditis, septic infection of the skin and metastases in the joints. Prognosis fatal and for this reason no operation was performed. In spite of this, complete cure resulted from medical treatment. In the third case, the sinus was probably opened and the facial wounded by a fracture of the base. For some time blood and cerebro-spinal fluid passed out of the drum perforation then became purulent and the symptoms of pyemia manifested themselves in the shape of high fever and pleural empyema. This was opened. It was decided not to open the mastoid on account of the uncertainty of the diagnostic relations and the severity of the disease condition. Patient was unconscious for a week. Complete cure resulted. *Levy.*

The Operative Treatment of Otogenous Sinus Thrombosis.

GRUNERT. (*Archiv. für Ohrenheil.*, Bd. 53.) Under the usual method of operating in pyemia originating from the ear, the sinus and jugular must eventually be attacked. Until now the bulbus has been considered inaccessible. The writer had three cases in which opening the sigmoid sinus and the jugularis was not sufficient, and to prevent recurring chills he opened the bulbus jugularis uniting the upper and lower portion of the jugular foramen, leaving shallow grooves. In these cases the procedure was successful as without it the patients would in all likelyhood have been lost. *Levy.*

The Relation of the Fundus ot the Eye to Otitic Intracranial Diseases.

HANSEN *(Arch. für Ohrenheil.*, Bd. 53), has studied the last 100 cases of intracranial affections occurring in Schwartze's Clinic with the view of determining the occurrence and changes in the fundus of the eye, from a statistical standpoint, with the following results. Changes in the fundus of the eye occur in all otitic intracranial complications, least commonly, 18 per cent, in extradural abscess and most commonly, 87.5 per cent., in hyperemia of the meninges, edema of the brain and meningitis serosa. Otitic suppurative meningitis causes changes in the papilla in 50 per cent. of the cases, abscess of the brain in 42 per cent., greater in cerebral than in cerebellar abscess. They are found in 45 per cent. of the cases ef sinus thrembosis. As to the particular form of change in the fundus found, the commonest was neuritis optica; in only 3 cases was choked disc found. The milder changes in the fundus have just as much importance in diagnosis as the more severe forms. However since changes are found in only half the cases, the positive finding alone is decisive.

Levy.

Endocranial Complications of Acute and Chronic Middle Ear Suppuration.

SCHENKE *(Arch. für Ohrenheil.*, Bd. 53), assistant of Leutert, reports 13 cases observed and treated by him and Leutert and presents deductions which may be considered as the views of Leutert. They do not differ in any important way from those expressed by him in a previous paper. At any rate, the cases support his position throughout their course. Of the 13 cases, 9 were sinus thrombosis, 6 following acute and 3 chronic otisis media, 5 on the left side and 4 on the right. Osteophlebitic pyemia was not present in any case, and local symptoms in the mastoid were present in only one case. The writer concludes that high fever after the cessation of the acute symptoms calls for opening of the mastoid and of the sinus. Finding little in the cells does not indicate the absence of sinus affection. Even the normal appearance of the mucosa of the mastoid indicates as little against the presence of sinus disease as the normal appearance of the sinus wall itself. In opposition to the recent view that an expectant

plan should be followed in pyemia, opening of the sinus must be advised in all cases. Death from air embolus has never authentically occurred and artificial sinus thrombosis, just as infrequently. It is best avoided by preventing pus retention and using thorough asepsis. Leutert, as is known, ligates the jugular before opening the sinus. Lumbar pucture is an excellent aid in establishing the diagnosis. Of course an encapsulated meningitis may show nothing but a positive result is certain in its indications. *Levy.*

Adhesion of the Drum Membrane to the Head of the Stapes After Operative Treatment of Otitis Media Suppurativa.

MATTE (*Archiv. für Ohrenheil.*, Bd. 53), in several cases in which the drum membrane was retained or reformed after the radical operation, found that remarkably good hearing followed when it was adherent to the stapes. The writer therefore recommends in favorable cases where the hammer must be sacrified that the drum membrane should be retained as far as possible and that efforts should be made to cause its adhesion to the stapes during the after treatment. *Levy.*

Treatment of Acquired Atresia of the Auditory Canal.

SCHWIDOP. (*Archiv. für Ohrenheil.*, Bd. 53.) Atresias of the auditory canal are difficult to relieve on account of the tendency to a return of the stenosis. The writer operated in a case in which a solid cutaneous closure of the auditory canal extending 5 mm. without involvement of the drum membrane, followed tearing off the auricle. A horizontal cut was made through the canal and a cross cut through the scar, laying it free, then a flap was made from the posterior wall of the canal. In order to obviate a second stenosis, the canal was widened by chiselling off the posterior bony wall at the canal and the flap properly sutured. Healing rapid. As soon as the tampon was left out for a few hours, tendency to a narrowing was to be observed. On this account the writer had a dentist take an impression with plaster and make a rubber prosthetic device. An opening being made, the patient could wear it for a long time without discomfort. *Levy.*

The Pathology of Deaf-Mutism.

I. HABERMAN. (*Archiv. für Ohrnheil.*, Bd. 53,) Deaf-mutism results in the majority of cases from affections of

the labyrinth. Even if disease of the middle ear is afterward found, it is not known that it alone may cause deaf mutism. The writer reports a case in which bony adhesions of the round window and fixation of the stapes alone were the cause of the deaf-mutism. The labyrinth was intact. Another case showed quite another picture. Although the round window was the subject of bony occlusion the oval window was free, and the patient could hear ordinary whisper one meter. *Levy.*

Ear Diseases and Hysteria.

Voss (*Zeitschrift für Ohrenheil.*, Bd. 40) illustrates by numerous examples the manifold varieties of hysteria affecting the ear.

In several cases, the patients had placed foreign bodies in the ear in order to simulate an ear affection. The temperature record was often falsified. The author is skeptical with reference to the spontaneous hemorrhage of hysterics. In his cases he was able to discover intentional wounding. Hyperesthesia of the canal and of the auricle was often found and, on the other hand, an anesthetic region which reached to the breast and there was often pain localized in the mastoid. In some of the cases observed by the writer operation upon the mastoid had been performed by him or other surgeons through an error of diagnosis. In a case presenting the typical objective picture of acute otitis media, blood alone was evacuated by paracentesis, from which the writer is inclined to believe that a hysteric otitis media may exist.

The diagnosis of hysteria must be in the first place supported by heredity. Disturbances of sensation of the skin are important, though they are not usually limited to the mastoid, but often to pressure points corresponding to the origin of the occipital nerves.

The anesthesia varies in time and place. The tuning fork is generally not heard through bone conduction on the affected ear. The patients are generally women between 20 and 30 years of age. Respecting the therapy, the writer lays stress and emphasis upon the fact that each attack may disappear. Special attention directed to the ear is harmful inasmuch as the symptoms increase.

For this reason treatment of hysteria of the ear should be conducted by the neurologist and not by the otologist.

Levy.

The Microscope as an aid to Diagnosis and the Prognosis in Chronic Suppurations of the Middle Ear.

SNYDACKER, CHICAGO. (*Archives of Oology*, Vol. xxx., No. 6.) The author makes a routine practice of microscopically examining the sediment of washing in case of middle ear discharge lasting upward of one year. While unwilling to agree with Bezold, who says "the smallest shreds of epidermis, if it can be shown that they come from the middle ear spaces, suffice to make a diagnosis of cholesteatoma," yet when epidemis is present in these washings and when it persists for weeks or even months then it is safe to regard this as a danger sign.

Another microscopic finding of the greatest importance, is the continuous presence of bone dust in the sediment. If the carious bone has its source in the ossicles and the tympanic wall and mastoid cells are intact, then there can be no danger in delay. Grunert in 108 cases of caries of the middle ear found only two where the ossicles alone were involved while either the tympanic walls or mastoid cells were involved in all the other cases.

The finding of cholesterin crystals is of no great import.

In a series of 13 cases the author found three where after prolonged treatment the microscopic findings were such that operation was advised but in each case declined.

The examination was made by taking portions of washing containing the most sediment and centifuged. One drop was placed on a slide and examined without staining; cholesterin crystals and epithelium could easily be identified; to another portion of the sediment a drop of picrocarmine was added, then spread out and examined.

For detecting particles of bone dust some dried sediment was fixed on a slide with albumin fixative stained with hematoxylin and eosin, dehydrated with alcohol, cleared with carboxylol and mounted in canada balsam.

Campbell.

A Tumor of the Middle Ear Springing from the Inner and Posterior Tympanic Wall Simulating Exostosis but Consisting of Calcareous Laminae.

BRAISLIN, Brooklyn. (*Archives of Otology*, Vol. xxx., No. 6.) The patient had a discharge from both ears

for twenty-three years, dating from an attack of scarlet fever. Recently an intermittent, beating tinnitus and a more abundant and serious discharge has come from the left ear.

The right Mt. has a perforation involving its anterior half and lower portion. Thick inspissated pus covers the floor of the canal.

The left Mt. is gone, and the cavity of the middle ear is almost entirly occupied by a smooth, glistening, pinkish-white excrescence, springing from a base, entirely within the annulus tympanicus. The entire growth appeared to be covered with living membrane and to its attachment covered the posterior two-thirds of the inner wall and almost the entire posterior wall of the tympanum.

On operation the mass was found to be a thin cover shell of bone-like consistency, with a transverse diameter of about one-fourth of an inch. The ossicles were ankylosed en masse.

On examination the specimen appeared to be a calcareous degeneration of some previously existing growth possibly a fibroma. *Campbell.*

A Case of Meningitis from Extension of Acute Purulent Otitis Media through Osteomyelitis of the Petrous Bone. Operation. Autopsy. Microscopic Examination.

KNAPP, New York. (*Archives of Otology*, Vol. xxx., No. 6.) A woman aged 31, ill six days with pain in the left ear followed by profuse otorrhea for two days. The mastoid red and very tender. Temperature 100° F., pulse 120, no sagging of the superior wall. Ice was applied to the mastoid for 36 hours; pain was relieved but returned on removal of the ice.

On operation, some granulations were found in few of the posterior mastoid cells; next day, a slight chill, temperature 102° F., discharge from ear canal continued. One week later another chill, temperature 104° F., pulse 120. The otorrhea still persisted and at intervals of from one week to ten days chills with high fever kept recurring. Six weeks from the time of the operation there developed slight stupor, severe pain in the head and back of neck. Right pupil dilated, ptosis, optic discs hazy. At a second operation with the exception of granulations and pus in the middle ear nothing was found. The patient became

progressively worse and died. On autopsy pus was encountered about the petuitary gland extending backward down to the clivus. A tenacious purulent membrane was found attached to the dura just back of the sigmoid sinus and another over that portion of the posterior surface of the petrous bone, lying between the sinus and the internal auditory meatus. This corresponded to the size of the ductus endolymphaticus, the end of the aqueduct of the vastibule. In the spinal canal there was a great quanity of purulent fluid. Cover glass specimens of the fluid revealed streptococci in long chains.

On microscipic examination the inner wall of the tympanum was found to be the seat of intense inflammation. The niche of the oval window was filled with inflammatory products; there seemed to be a minute perforation through the window. The stapes was gone. There was slight involvement of the vestibule, especially of the perilymphatic spaces, extending to the beginning of the eighth nerve and also partly along the external semicircular canal. Below the round window a fistulous tract measuring 2 mm. in breadth extended in the cancellous bone below the labyrinth from the inner tympanic wall. This cancellous bone was the seat of an intense osteomyelitis. Resorption of the bone had taken place and an abscess had formed in the bony tissue which at the point on the posterior surface of the petrous, where the microscopic lesion was found at autopsy, had distinctly broken though the cortex and invaded the dura. *Campbell.*

Chronic Progressive Deafness.

COLLIER. *(Med. Press. Lon.* Feb. 5, 1902) A policlinic article on nasal obstruction. *Wyatt Wingrave.*

Chronic Median Otitis followed by Suppurative Bursitis.

BRANSON *(Brit. Med. Journ.* Feb. 8, 1902,) Case of a male, aet. 27, the subject of discharge for 20 years, who had appendicitis followed by acute suppuration of the subscapular bursal sac and shoulder joint, which was opened, dranied and cured. The author considered it to be staplylocial inspection secondary to ear trable.

Wyatt Wingrave.

On the Treatment of Deafness of Middle Ear Origin.

WATSON *(Brit. Med. Jour.* Mar. 12, 1902) describes a method of treatment by means of external solutions of

bone marrow. (The details are somewhat unconvincing, owing to the absence of the orthodox tests and it is difficult to understand what particular forms of middle ear disease are referred to. Abstractor.)

Wyatt Wingrave.

The Question of Ligaturing the Jugular Vein in Sigmoid Sinus Thrombasis.

FIRTH. (*Bristol Medico. Chirurg. Jour.*, March, 1901.) The author considers that the records of the operators indicate that ligature of the jugular vein in sinus thrombasis need not be regarded as an essential in all cases; that it is better not to ligate in cases operated upon, before embolic abscesses have formed if a free flow of blood can be estalished from both ends of sinus by removal of thrombosis, or if these be firm, healthy thrombus, by plugging the sinus at the lower end on both sides.

Wyatt Wingrave.

Somnolence Causea by an Ear Lesicn.

W. G. B. HARLAMD, Philadelphia. (*The Philadelphia Medical Journal*, March 29, 1902.) The case is that of a boy of 13, complaining of a tendency to sleep all the time. He would go to sleep without feeling tired or whenever his attention was not aroused by action. He would fall asleep on his way to the store, at the dinner table, and one day slept the entire 24 hours.

This condition had lasted one month. Physical examination showed no defect except a small impaction of cerumen in the left ear. This was removed, and a few drops of fetid pus found behind it. The drum was macerated, and there was a large perforation in the lower posterior quadrant. All symptoms immediately disappeared.

The author considers that the trouble was due to meningeal irritation from the absorption of pus or possibly to pressure upon the labyrinthin fluid. *Richards.*

Operation for Caries of the Mastoid, Secondary Opening of the Lateral Sinus, and Ligation of the Internal Jugular Vein.

JULIUS ROSENSTERN, San Francisco, Cal. (*Medical Record*, Nov. 23, 1901.) Patient was a boy 15 years old who had first noticed pain in the right ear four weeks before, followed two weeks later by severe headache, feverishness, and a purulent swelling over the mastoid.

The usual mastoid operation was performed, the special incident being that there was profuse venous hemorrhage on opening the bone. Five days afterward there was severe pain in the right side of the head, and severe hemorrhage when the wound was dressed, requiring a gauze tampon. Four days later there was pain in the forehead, and three days later the temperature rose to 105.4, and evidences of pyemia were such that the wound was reopened. It looked perfectly clean. The bone over the sinus was chiselled off, and the sinus exposed, but it showed no lesion. It was aspirated, only one or two drops of blood being obtained. The wall of the sinus was opened without hemorrhage occurring. A small curette was introduced anteriorally, but nothing was brought out. Posteriorally, a clot 3 cc. long was removed followed by profuse hemorrhage. The bleeding was allowed to go on for a few seconds, when the wound was packed with gauze. The following day the temperature was 98, the headache and nausea had disappeared, but there was pain in the right anterior part of the neck, and edematous swelling along the line of the internal jugular vein, and pain on pressure. The vein was then ligated through an incision 6 cc. long, internally and parallel to the border of the sternomastoid muscle. It was found to be empty. Ligatures were applied one and one-half cc. apart, and a small piece of the vein excised between them. The wound was immediately closed with a running suture of silkworm gut. Recovery from this time forth was uneventful. Two years have since elapsed, and the patient has remained perfectly well. *Richards.*

Use of Antistreptococcus Serum in a Case of Septicemia Following Mastoid Operation; Recovery.

MARY F. HOBART, Boston. (*Boston Medical and Surgical Journal*, Dec. 12, 1901.) Case was one of severe septicemia in a woman of 63 years, following operation for acute mastoiditis. At the operation all of the mastoid cells were filled with granulations and pus, which pus was found on bacteriologic examination to be loaded with streptococci. After the operation, delirium, high temperature, rapid pulse and tremor were present to such a degree that the case was considered almost hopeless. At the suggestion of the consultant, antistreptococcus serum was used, temperature being at the time 105.2, and pulse 122. 3

cc. were injected under the scapula at 5 p. m., and at 7 p. m. 10 cc. were injected. The pulse increased from 150 to 180, but five hours after the second injection there was a change in the pulse, it became regular, the character improved and it fell to 120. The following morning the temperature was 103, and the pulse 112, and erysipelas developed in the wound. At one p. m. of the same day another dose of antistreptococcus serum was injected. The temperature was 104.6, pulse 170, respiration 50, and there was complete relaxation of all the sphincters and intense delirium. Death seemed imminent, but the next day there was improvement. A fourth dose of antistreptococcus serum was injected, followed as before by an unfavorable reaction but later on by improvement. The temperature dropped from nearly 105 at midnight to about 103 in the morning. The mental condition was very discouraging, but the pulse improved, the temperature gradually became lower, and six days after the operation, and four days after the first injection of the serum the temperature was normal, and the pulse 84 to 90. The brain became clearer, and three weeks after operation the patient was convalescent. The author thinks that the use of the antistreptococcus serum saved the patient's life, although in most cases in which it has been used the results have been negative. *Richards.*

The Middle Ear in Tuberculosis.

BURNETT C. COLLINS, Brooklyn, N. Y. (*Brooklyn Medica Journal*, 1901.) Aural tuberculosis is comparatively rare, the statistics varying from two and four-tenths to seven and nine-tenths of the cases of phthisis in which the ear has been examined. The drum usually shows a large, gaping perforation. The tissues are pale, with drum and mucous membrane bleached. Granulations are rare. There is seldom a history of pain. The ossicles sometimes come away on wiping the ear with cotton. The ear discharges often contain bacilli, but may not, and the examination of many slides may be necessary. When pain is present it is probably due to secondary streptococcus infection.

The author reports a typical case, with large, central perforation and profuse discharge in a tuberculous patient in whom bacilli were found in the sputum and also in the discharge from the ear. The malleus came away while

the ear was being syringed. One ear healed and then the other began to discharge.

Comparatively little can be done in the way of a cure of the ear lesion. The treatment must be directed to the general condition. Surgical measures are contraindicated except when the disease is localized. Medicinal treatment consists in keeping the ear clean by various measures, such as peroxid of hydrogen, the dry treatment, iodoform. boric acid, and gauze drainage. *Richards.*

II.—NOSE AND NASO-PHARYNX.

One of the Etiologic Factors in the Production of Deflected and Deformed Nasal Septums and the Methods for Its Relief.

NELSON M. BLACK, Milwaukee, Wis. (*American Medicine*, Feby. 15, 1902.) The cartilaginous nasal septum, being the weakest portion of the structure and lying between the bony ethmoid and the bony superior maxilla, has a tendency to bend or buckle when force is brought to bear upon it. If weakened by disease or trauma, the act of mastication, in which a force of from 50 to 300 pounds is brought to bear upon the upper jaw by the lower, may force a large proportion of the pressure upon it. The two plates will either bend as a whole, or may become separated, forming a diamond-shaped split septum. Cases of septal deformity in which the high-arched palate seems to be an etiologic factor can be satisfactorily remedied by treatment at the hands of the orthodontist. *Richards.*

Removal of Superior Maxilla for Malignant Polypus.

PUZEY. (*Liverpool Med. Chir Jour.*, Sept., 1901.) Male, aet. 61, had a polypus growing apparently from the right antrum, filling the right nostril and obstructing the corresponding lacrymal duct. The whole maxilla and growth were removed by Fergurson's incisions. The polypus was a sarcoma of the spindle cell variety and had absorbed the floor of orbit, wall of antrum and the ethmoid cells. *Wyatt Wingrave.*

Atrophic Rhinitis Treated by Injection of Melted Paraffin into the Inferior Tubinals.

LAKE. (*Lancet*, Mar. 22, 1902.) The case having been

under ordinary treatment for many years the inferior turbinals were enlarged by the submucous injection of paraffin, which has proved successful so far as the patient's comfort was concerned. *Wyatt Wingrave.*

The Correction of Deflections of the Nasal Septum with a Minimum of Traumatism.

OTTO T. FREER, Chicago (*Jour. A. M. A.*, March 8, 1902), objects to the method of Asch as producing an extreme degree of traumatism. It is one without illumination; is accompanied by considerable reaction and frequently by rise of temperature, occasionally causes severe hemorrhage; is not infrequently followed by some sepsis, requires general anesthesia, and is not adapted for bony deflections.

The operation recommended is the Ingals' operation of resection of the septum, originated in 1882, later known as "Fensterresektion" of Krieg, which was an extension backward of the Ingals' operation, in that the entire deflected cartilage and not merely a triangular portion in front was removed. This operation is suitable for both angular and bowed deflections, and consists in resecting that portion of the cartilage of the septum which is affected.

A triangular cut is made on the convex side of the mucous membrane. This is dissected up, leaving the cartilage bare, and then with special knives with very sharp blades bent on the flat on the shank at an obtuse angle, the cartilage is cut through, and gradually lifted from its attachment by an elevator or spud, and cut away, after which the mucous membrane is laid back in position and a tampon inserted to maintain it.

If behind the part removed there is still deflection, it is weakened by driving a chisel longitudinally into the bone between the layers of the mucous membrane. The chisel is then withdrawn, and the bony portion fractured with the Roe forceps after the manner described by Roe.

The operative field is anesthetized with powdered cocain and suprarenal, and all bleeding points staunched, so that the operative field is at all times free from blood.

The time required is from one-half to one and one-half hours. The operation is somewhat tedious. The local anesthesia must be complete. Chloroform can be used for

application of the Roe forceps, but is not usually needed.

This operation is not practicable for children under ten years of age and not after that age unless the patient can be relied upon.

The reaction is slight, and no confinement to bed is needed. At the close of the operation a tampon should always be inserted, since secondary hemorrhage after the use of the adrenalin may occur.

"The breathing through the nostril is better immediately after the operation than for some weeks afterward, as swelling and congestion of the mucosa of the opened naris and a certain amount of provisional callus growing on wounded bone and cartilage need time to be absorbed. After two months or more the nostril becomes as open as right after the operation."

This operation has the advantage of a free field of vision during the entire period of its performance, and does not require confinement to bed. Various special instruments are shown, but are not absolutely necessary.

(The reviewer has seen this operation done by Hajek, of Vienna, and has also had personal experience with it in his own practice, and can most heartily recommend it for cases in which it is applicable.) *Richards.*

Adenoid Vegetations and their Influences on the Palatal Arch.

FREDERICK H. MILLENER, Buffalo, N. Y. (*Philadelphia Medical Journal*, April, 1902), thinks that the high palatal arch and irregular, prominent teeth so often seen are due in many if not most instances to incomplete development dependent upon mouth breathing, which in its turn is due to adenoid vegetations. Before the teeth of young persons between 10 and 18 years of age are regulated, it should be ascertained whether they are mouth-breathers and have adenoids. If so, appropriate treatment should be had before correcting the teeth by dental measures.

Dentists ought to be familiar with the etiologic relationship between irregularities of development of the teeth and mouth and nasal nasopharyngeal obstructions, and prepared to suggest to parents the proper treatment.

Richards.

III.—MOUTH AND PHARYNX.

Imperforate Pharynx.

SHATTOCK. (*Brit. Med. Jour.* Feb. 19, 1901.) Reference to ten difference in origin of pharyngeal atresia and imperforate pharynx. He pointed out that the former was situated most frequently opposite the lower end of the trachea, that it arose during foetal life and was probably associated with the development of the lump; while in imperforate pharynx, the disposition corresponded with an abnormal persistence of a normal phase of development.

Wyatt Wingrave.

Acute Retropharyngeal Abscess of Infants.

PEARSON, (*Lancet*, Dec. 26, 1091). The youngest case 7 weeks old, the latest one recorded being 3 years old. Symptoms were muffled voice, difficulty in sucking and swallowing, purulent nasal discharge, fullness of neck, enlarged glands and constitutional sigus.

The treatment advised was incision behind and parallel with posterior border of sterno-mastoid muscle, just on centre of swelling; using director and directing forceps followed by drainage tube. He considered the disease chiefly in associated with cervical adenoids.

Wyatt Wingrave.

Hysterical Dysphagia.

BALL. (*West London Med. Jour.* Jan., 1902). Case of female, aet. 35 who had suffered with difficulty in swallowing food for 2 years: all her other functions were normal. Cured by passing bougies twice weekly for one month.

Wyatt Wingrave.

Follicular Tonsillitis.

ROBERT CURTIS BROWN, Milwaukee, Wis. (*Medical Record*, March, 1902.) The author believes in the protective nature of the tonsil, and that while the removal of distinctly hypertrophied tonsils may prevent the recurrence of tonsillitis, provided the crypts are entirely removed, yet it will not protect the body against subsequent attacks of sore throat or any of the infectious diseases that gain access to the body by way of the tonsil.

Follicular tonsillitis is not caused by a single microbe, but by many.

"When the streptococcus pyogenes is the cause of the

follicular tonsillitis the diagnosis from diphtheria is extremely difficult; as the appearance of the membrane formed is almost identical with that of diphtheria."

He thinks that the presence of the Klebs-Loeffler bacillus in a non-virulent form is not conclusive evidence that the case is diphtheria; the disease may be a simple follicular tonsillitis. The membrane, however, in simple tonsillitis can always be removed by a swab, and does not bleed when forcibly removed. It should have no texture, and should be non-adherent.

Whatever the nature of the tonsil, it seems by its activity to endeavor to assist nature in eliminating infection.

Richards.

Malignant Disease of the Tonsil.

F. E. HOPKINS, Springfield, Mass. (*Boston Medical and Surgical Journal*, Oct. 17, 1901.) In the great majority of cases of malignant disease of the tonsil the diagnosis lies between the round-celled sarcoma and epithelioma. Epithelioma quickly ulcerates, while sarcoma more frequently forms a rounded, smooth, distinct tumor, not ulcerated in the early stages, and appearing like simple hypertrophy of the tonsil. So far as the symptoms are concerned they are much the same. Pain is more likely to be an earlier and more troublesome symptom in carcinoma. The early pain may be referred to the ear, and the patient seek relief complaining of the ear rather than of the tonsil. The diagnosis may be difficult in the early stages of either affection.

The prognosis is always grave, death usually occurring in from six months to a year.

Whether the growth be sarcomatous or carcinomatous up to the present time operative measures have not been very successful, though occasional cases are reported in which life has been prolonged two or three years, and if the case can be operated upon early enough there may be no recurence.

The author cites a case of Dr. Coley's in which recurrence after the use of the toxins of erysipelas was delayed for eight years, though death finally occured from cancerous disease.

Details of the method of operation are given.

Richards.

Affections of the Mouth and Throat, Associated with the Fusiform Bacillus and Spirillum of Vincent.

EMIL MAYER, New York. (*American Journal of the Medical Sciences*, Feb., 1902.) Dr. Mayer reports a case of angina of each tonsil, due to the fusiform bacillus and spirillum of Vincent. The trouble lasted four weeks, accompanied by a pain of mild type, salivation, and swelling of the glands at the angle of the jaw.

The deposit in this affection may exist for some time without being noticed. It is white, soft on top, readily detachable, leaving an excavated bleeding surface. There is some induration, a fetid odor to the breadth and slight pain on delugtition in addition to the symptoms noted. The tonsils and borders of the gums, the lips and the tongue are the areas affected. The duration is from one to six weeks.

The prognosis is good, but there is great tendency to recurrence.

The question of diagnosis is of importance, as this affection may easily be confounded with diphtheria or syphilis, or mistaken for them. The bacteriologic diagnosis is all important in all suspicious cases of membrane of the throat, since a diagnosis of syphilis when the individual is innocent of the lesion would be very unfortunate. In all doubtful cases bacteriologic examination ought to be made, especially in cases in which the history is not clear and there may be some doubt. *Richards.*

The Formation of Cysts in the Faucial and Pharyngeal Tonsils.

J. L. GOODALE, Boston. (*Boston Medical and Surgical Journal*, Dec. 19, 1901.) This is a study in pathology. These cysts are lined with stratified pavement epithelium, and probably owe their origin to the degeneration following acute inflammation in which adhesions of the opposite walls at the outlet of the crypt have occurred. The inflammatory process being acute, is always most active at the outlet of the crypt, which would favor the formation of adhesions at this point.

The author has made histological examinations of cysts, both in the faucial and in the nasopharynge tonsils.

Richards.

IV.—LARYNX.

The Larynx in Eunuchs.

MAX SCHEIER *(Monatsschrift für Ohrenheilk.*, Bd. 30, No, 10) has determined by means of the Röntgen ray that ossification of the larynx begins at the age of 18 years. In women, ossification begins in the inferior cornu and the posterior border of the thryroid.

Ossification progresses gradually in front, above and below in a symmetric way, but does not extend over the entire plate. On the contrary, the anteromesial portion remains cartilaginous. In men, ossification progresses along the lower border anteriorly and advances in a shape of a small zone forward and above. Finally the entire thyroid cartilage may become ossified. Through the influence of an oriental collegue, he had a Röntgen photogram of the larynx of a eunuch from which he could establish the plan of ossification. He found that the posterior portion of the thyroid cartilage was ossified as far as the median line while the anterior portion was entirely free of bone. From which he concludes that the ossification of the larynx in eunuchs is of the type found in women.

Levy.

Case of Cancer of the Larynx with a Long Course.

DONALDSON, *(Brit., Med Jour.* May, 25, 1901.) A female, 28 years old, suffered with warts on both cords. For several years they were considered to be benign. After 6 years they were pronounced to be malignant and the patient died 3 years later. It proved to be an epithelioma. (variety not given.) *Wyatt Wingrave.*

Clinical Significance of Chronic Hoarseness and Loss of Voice

WILLIAMS, *(Bristol Med. Chir. Journ.* Sept, 1901.) An instructive epitome of the organic diseases associated early in their development with persistent voice changes.

Wyatt Wingrave.

Case of Paralysis of Right Vocal Cord Due to Thoracic Aneurysm

BARON, *(Bristol Med. Chir. Jour.*, Sept., 1981.) Male aet 50 had a "thin piping" voice of a few months duration with cough, expectoration and loss of weight. There was complete paralysis of right vocal cord, left pupil dilated and

left radial pulse small, but no chest signs. Skiagraphy proved the existince of an aneurysm of the whole aortic arch. *Wyatt Wingrave.*

Case of Recurrence of Larnygeal Papillomata in a Child After Tracheotomy.

SYMPSON. *(Brit. Med. Jour.* Nov. 9, 1901.) Trachceotomy was performed on a child aet. 7 years for multiple papillomata; warts however increased and they were removed after thyrotomy: result, complete recovery of voice. *Wyatt Wingrave.*

V.—MISCELLANEOUS.

Intubation and Tracheotomy in Diphtheria under Serotherapy.

F. SIEGERT *(37 Versammlung Deutscher Naturforscher und Aerzte)* has studied the statistics of 22600 cases, especially as to the tracheotomy in comparison wit h primary intubation; the performance of tracheotmy in intubated hospital patients, primary as well as secondary, also where intubation is valueless. Looking at the subject from its clinical aspect only, he reaches the following conclusions:

1. Tracheotomy and intubation give a mortality of 34 per cent. in 11104 tracheotomies and 11511 intubations on hospital patients.
2. To attain these results the intubation must be primary and the tracheotomy secondary.
3. The greater frequency of tracheotomy corresponds to the results in intubated hospital cases.
4. Mortality has not been lessened by the change from tracheotomy to intubation in hospitals.
5. The use of both methods only gives the best results possible. *Levy.*

The Present Status of Intubation.

J. VON BOKAY, *(37 Versammlung Deutscher Naturforscher und Aerzte)* presents this subject in the light of his own experience, 1271 cases, and of the literature of intubation. He believes that primary tracheotomy should only be performed in those cases in which severe pharyngeal stenosis is present in addition to the larynx stenosis, and where no result appears possible from intubation on account of the edematous swelling of the laryngeal orifice.

Since the introduction of serotherapy, it has been possible to refrain from the operation in 37 per cent. of the cases. He performs intubation in private practice as well as in hospitals. In country practice, tracheotomy must be performed when it is impossible to secure an intubationist. He does not believe that intubated children are especially predisposed to catarrhal pneumonia nor is foreign body preumonia common. The danger of loosening the pseudomembrane with the tube is insignificant. He uses intubation with advantage in syphilitic stenosis, other cicatricial stenoses and laryngitis subglottica. *Levy.*

A Remarkable Case of Tuberculosis of the Trachea and Varix Formation with Fatal Result.

GIDIONSEN (*Munch. Med. Woch.*, 1901, No. 42) reports a case of a woman aet. 41 years who had been affected with severe emphysema for a year. No tubercle bacilli were found in the sputum. After a febrile attack she was suddenly taken with a severe pulmonary hemorrhage causing death by asphyxia. The lungs on section were found free from tubercular changes. In the trachea were found several varicose dilated veins, one of them lying just over the bifurcation; on the posterior wall an ulcer as large as a penny which was shown by microscopic examination to be tubercular. Both bronchi were filled with coagulated blood. As the other parts of the body were not examined post mortem it cannot be said positively that this was a case of primary tuberculosis of the trachea. At any rate the emphysema caused the dilatation of the veins of the trachea. The tubercular ulcer was independent of this, clearly accidental as to its occurance in the neighborhood of the veins, though it caused their arrosion. The hemorrhage would undoubtedly not have caused death, if the severe emphysema had not made strong expiratory efforts impossible. *Levy.*

The Preventation of Moisture Clouding of Mirrors.

DOWNIE (*Med. Press Lon.*, Mar. 5, 1902) recommends "le crayon antibuse."

(The well known soap method leaves nothing to be desired.—Abstractor.) *Wyatt Wingave.*

Observation on Lyarngeal Intubation.

GOODAL. *(Edinburgh Medical Journal.* March, 1902.) 101 cases treated by Bayeau modified O'Dwyer's method. An appreciatory article. *Wyatt Wingrave.*

Tortuosity of Internal Carotids.

MOORHEAD *(Brit. Med. Jour.*, February 8, 1902.) Experience as a demonstrator of anatomy led him to consider the malformation to be a very common one. It was generally bilateral add occured in old age and was probably due to arterio-sclerotic changes. *Wyatt Wingrave.*

Tent Life and Simplicity in Therapeutics as Factors in the Treatment of Phthisis Pulmonalis.

WM. K. ROBINSON, Denver, Col. *(Therapeutic Monthly*, December, 1901.) The author gives a report of two years experience in a colony of tuberculous patients living in tents on the plain east of Denver. The results have been satisfactory. Simplicity of life in the open air, with the administration of few drugs, was the main feature of treatment. In very cold weather the cases did as well as at any time and many patients preferred to sleep without heat, although stoves were provided in the tents.

Reconstructive metamorphosis is the greatest antagonist of the bacillus of tuberculosis; this is best accomplished by complete and rapid exchange of the gases; involuntary gymnastics at moderate altitude; personal hygiene; nutritious food; mental and physicial rest, well-regulated measure of exercise, such few drugs as may stimulate the weakened digestive and circulatory functions, and such other drugs as may be needed to regulate the excretions and secretions, while alleged specifics are abstained from. All this is best attained by a life of freedom so far as possible in the open air, and it may be accomplished irrespective of altidude and meteorologic or other climatologic conditions. *Richards.*

Rhino-larynyologic Reports.

H. VON SCHROTTER *(Montatsschrift fur Ohrenheil.* Bd. 35 No. 10) reports a case in which a sound was thrust into the cranium—into the brain, as shown by the Röntgen rays. Autopsy showed the existence of a tubercle in the dura.

He was able to establish the influenza bacillus as the cause of a case of empyema of the antum.

In a case of nephritis, a severe edematous swelling of the aryepiglottic fold occurred; in two others extensive edema of the epiglottis. In all these cases which seemed to indicate tracheotomy, the writer removed the swollen parts with a cold snare. Scarification in insufficient for such cases,

He observed a case of chronic idiopathic edema in which there did not appear to be any assignable cause and he concluded that this must be considered as analagous to elephantiasis.

A diaphragmatic closure of the larynx at the level of the local bands existed in a case of scleroma. The membrane was cut and the voice became clear and the breathng free.

He advises that the characteristic changes of the epiglottis in typhoid be looked for in all cases where there is the least suspicion of typhoid.

The thyroid gland appeared to be the primary seat in a case of achinomycosis. After the cyts had been thoroughly emptied, an infiltration appeared above the clavicle and later in the sinus pyriformis. It was necessary to incise both, after which recovery was complete.

A case of carcinoma of the mouth was cured by curetting. Autopsy of a patient who during suffered from total paralysis of the left recurrent, showed that nerve lay between the aorta and a dilated ductus Botalli and in this way the pressure on pulsation caused the paralysis. The cause of another case of recurrent paralysis lay in a metastatic carcinoma in the mediastinal lymph nodes with rupture into the trachea.

Stenosis followed a cancerous metastasis of the trachea. Extensive stenosis at the bifurcation was caused by swelling of the bronchial lymphnodes in two cases. In one of these cases, retrograde metamorphosis occurred through cicatrization, then it remained stationary.

In a case of syphilis, an extensive cicatrix, 5 cm. long transformed the trachea into a tube whose lumen at its narrowest point was 4 mm. in diameter. All efforts at dilatation were unavailing so that section of the trachea was necessary. As a consequence, suppurative mediastinitis arrosion of the innominate artery and death from hemorrhage followed.

In three cases of tuberculosis of the trachea, difficultly of breathing was the most important symptom. Dilatation with short bougies gave favorable result.

In a case of diverticulum of the esophagus, the writer stuffed the sack with long strips of iodoform gauze making it possible to show the topographic relations by means of the Röntgen rays. *Levy.*

PROCEEDINGS OF THE MIDDLE SECTION, AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAS SOCIETY, AT ST. LOUIS, FEBRUARY 22, 1902.

H. W. LOEB, M. D., CHAIRMAN.

Dr. C. R. Holmes read a paper entitled,

Enormous Naso-Pharyngeal Muco-Fibrous Polypus with Macro- and Micro-Photographs.*

Dr. O. J. Stein, Chicago: To me the remarkable feature in the report of this case, aside from the enormity of its size and the facility and dexterity exhibited by Dr. Holmes in removing it, is the fact that so little hemorrhage accompanied the operation. It is true the case is one of the soft fibrous form of naso-pharyngeal polypi which would probably account in part for the lack of hemorrhage. Another reason, in my judgment, is that it had a small pedicle; the third reason is the method which was so ingeniously adopted by the operator in removing it by torsion or twisting; a fourth reason was the lack of adhesions within the naso-pharynx, as I understand the case.

Reference was made by Dr. Holmes to the rare appearance of adhesions within the naso-pharynx and nares in the fibrous forms of naso-pharyngeal polypi, and it is generally understood that we seldom have adhesions there. I have the record of one case showing two adhesions. It was a polypus about three inches in length presenting two adhesions within the nose and naso-pharynx. So extensive was it that the snare used anteriorly was inadequate for removing it, and I had to resort to scissors and finally extracted it through the anterior nares, which was done with great difficulty. It shows that occasionally we meet with these growths of a fibrous character in the naso-pharynx, with adhesions.

Dr. J. A. Stucky, Lexington, Ky.: None of you are more interested in the report of this case than I am, because I had a rather startling experience with two cases.

*See page 295.

These cases I shall report in detail at the next meeting, in Saratoga, and will only refer to them now.

A boy, of seventeen years, came to me, with a growth very much like that described by Dr. Holmes, and evidently springing from the vault of the pharynx, pushing the soft palate forward; it did not quite reach the epiglottis, and one horn bordered on the anterior nares. There were adhesions to the septum and it was impossible to do anything with the snare. I had an extra-strong steel snare made, having broken No. 5 piano wire several times, and had to use a plumber's forceps to hold the canula and tighten the nutscrew. The way the patient bled was frightful. Unable to relieve him, I took him to the Kentucky State Medical Society, and was advised by leading specialists to let the case alone. A section was cut off and sent to New York, and a diagnosis of fibro-adenoma was made. I called in a general surgeon, who did an external operation, separating the nose, and, after my putting a loop around the base of the growth and tightening it, the surgeon went into the antrum and cut out the growth with knife and scissors. The snare controlled the hemorrhage to some extent, but we had to use the galvanic cautery in the posterior nares at the base of attachment. After remaining in the hospital for several months, he made a good recovery.

The second case was in a boy of fifteen years. This growth also sprang from the vault of the pharynx, one horn bordering on the anterior nares. That portion, I succeeded in snaring pretty well, and got it out. The growth bordered on the posterior nares, down below the soft palate. I attempted to use the nasal snare, but found this impracticable; so, I slipped another snare over it, pushed it well up, tightened the wire and tried to cut it off, but could not do so. The snare was allowed to remain in position for 18 hours, tightened every 30 minutes. At the end of 13 hours the growth was loose, but would not come off. It was finally twisted and torn off. In both of these cases, especially after my first experience, I was prepared for hemorrhage.

Dr. W. L. Ballenger, Chicago: Soon after going to Chicago, a case came under my observation, and when I first saw it, I did not recognize the character of the growth. It

seemed to be an ordinary polypus, protruding at the anterior nares. I introduced the snare around this portion and attempted to remove it, and had a similar experience to that already recited here, namely, I could not get the snare to cut through the growth. The symptoms presented by the patient, when I first saw him, were very striking and, if I had had more experience, I should have easily recognized the nature of the growth then. The boy was 12 years of age. When sitting in a chair, he would often seemingly go to sleep while examining him. With rough handling, he could be aroused, only to relapse into his former condition. At a subsequent sitting, under general anesthesia, the growth was partially removed. The operation was stopped when the patient was at the point of death, from hemorrhage. Normal saline solution was injected and the patient recovered. He was placed in the hands of Dr. Carl Beck, who performed a radical operation.

I consider the essayist's paper very comprehensive—one that will be referred to, in years to come, as a standard on this subject.

Dr. Norval H. Pierce, Chicago: I have been counting up the cases of post-nasal growth that I have seen. I recall eight. Five of these came to operation; three were not operated upon as far as I know. Of the five operated upon, 2 died on the table, 2 died within 10 days, and the other got well. They were all fibro-sarcomas and grew from the base of the sphenoid bone, and operation consisted in temporary excision of the superior maxilla. Koenig has made a voluminous report of cases of tumor originating in the post-nasal space, and found that over 90 per cent. originating in the prevertebral tissues were sarcomatous—fibro-sarcomatous. Though not as malignant as a purely sarcomatous growth, these have a tendency to recur after complete, or as far as possible complete, extirpation, and possess a tendency to invade neighboring cavities such as the orbit, the antrum, the zygomatic fossa, etc. Therefore, we should not forget that tumors which originate at the base of the sphenoid have an entirely different significance from tumors originating elsewhere in the posterior nasal space and nasal fossa. They are not pedunculated as a rule, but have a

broad base and give entirely different results in an operative way; first, because they are sarcomatous, next because they originate nearly always about puberty, and the patients at a very early date become anemic because of the recurring hemorrhages from the surface of the growth. This anemia occuring at this period of life is apt to produce degeneration of the myocardium. In this way we can account for the enormous number of deaths on the table when such growths are operated upon. It is not alone because of the hemorrhage during operation, but because of the effect of ether upon a degenerated heart. I believe we would have a better chance if we tied the carotid and allow a few days to elapse before proceeding with the operation. In this way we diminish the dangers of hemorrhage. Above all, however, I think we should never, in these cases, operate through the posterior nares with the nasal snare. In cases of pedunculated pure fibromas it is different. When the operator possesses sufficient skill to extirpate them through the natural passages an external cutting should not be considered. Those who know from experience the difficulty with which tumors in this region are removed, will, I am sure, join me in congratulating Dr. Holmes on his brilliant results.

Dr. Stucky: Would it not be a good idea to put the snare on to control the hemorrhage?

Dr. Pierce: The hemorrhage would be better controlled by tying the carotid. The operation of temporary excision of the maxilla is exceedingly bloody.

Dr. W. B. Shields, St. Louis: I have seen two cases, one operated on by Chiari without the use of general anesthesia, this growth springing from the base of the sphenoid. The hemorrhage was enormous—I think the patient lost a pint of blood in half a minute. The assistants were very skilful men and the hemorrhage was stopped promptly. This was a fibroma. The other was operated on by Dundas Grant, in London, but was a polypoid growth on the posterior surface of the ethmoidal region. It was pedunculated and removed without much hemorrhage.

Dr. Jos. Beck, Chicago: Referring to the case mentioned by Dr. Ballenger I will say when the boy came to us he was extremely anemic—almost exsanguinated—he was ob-

served for about three weeks before anything was done. The patient presented the typical frog face, with exophthalmos. This was probably due to pressure upward into the cranial cavity or possibly from absorption of toxic secretions, which were present in large amount. An effort was made to improve his general condition during the three weeks, then the operation of Langenbeck was performed, the carotid artery being primarily ligated. The typical incison was made along the side of the nose and the soft palate split, as in temporary resection of the superior maxilla. A tumor was found and showed that a small projection had been cut off. There were marked adhesions at the point where the operation was attempted and the bleeding was considerable. The hemorrhage was controlled, and the tumor was found to pass into the antrum, the origin found near the opening of the antrum and the same filled out with the tumor mass. On section it was found to be a true fibroma with a vascular capsule. The cavity was thoroughly cleaned out and all the tumor that could be reached was taken away, the cavity packed with gauze, the jaw replaced and the boy made a good recovery. I saw him six months ago and to all appearances he was practically well.

I recall another case operated on at Kaufmann's clinic. The electro-cautery snare was used. It was a fibroma in a young man. The tumor was removed at different sittings by Dr. Vimula, with very little bleeding. My brother, Carl Beck, has reported 5 cases purely sarcomatous. Two originated from the pterygoid region, passing outward and giving the appearance of a tumor back of ramus of the lower jaw. A sarcoma, was firmly attached to the lower portion of the pharynx. Three cases are reported recovered; one case died several months later, and another died two hours after the operation, which was a permanent resection ef the upper jaw because of involvement of the jaw proper.

Dr. M. A. Goldstein, St. Louis: Emphasis should be made upon the early and prompt microscopic examination. This appears to me as a most important feature when dealing with this class of cases, first, because the difference between a malignant and a benign growth will materially determine the prognosis, and second, because the difference

between the benign and the malignant will determine, to a certain extent, the form of attachment of the growth. As a rule the simple fibroma is pedunculated and the malignant has a broad base attachment; this is of some practical importance in the mechanical handling of the case and may have a bearing on the method of removal of the growth at the time of operation.

Dr. H. W. Loeb, St. Louis: I would like to refer to a case which under my observation and which is thoroughly in line with what Dr. Holmes said. I have seen three cases of what can be called the soft fibroma type as reported by Dr. Holmes. One case occurred in the practice of my preceptor when I was still a student and was removed by grasping it with the finger and pulling it out. Another I removed early in my practice by means of a snare. This growth extended down to the uvula. The third case was about a third or a half as large as Dr. Holmes' case and extended below the palate. It was grasped and pulled up without hemorrhage.

Of the hard variety I have seen five cases. One of these has been reported under the name of adenocystoma vasculosum. It was a case in which the growth straddled the septum, both ends being delivered through the anterior nares. There was no exophthalmos.

The next case I was one case of naso-pharyngeal fibroma and extended about half way dawn the epipharynx. In addition to these I have seen two other cases diagnosticated by microscopic examination as sarcomata. I want to say here that I have not much confidence in the diagnosis of these cases by the microscope. One of these cases is now well. One was said to be a round celled sarcoma the other a spindle celled sarcoma growing from the base.

In the case where the septum was straddled I started by taking what I could with the electro-cautery snare. There was hemorrhage of course but this was controlled. After taking off several masses with the snare I decided to follow the plan of electrolysis. I found this had a great influence upon the vascularity of the tumor which was gradually lessened so that I could remove the pieces with the snare and the cautery knife without great hemorrhages. I am sure the electrolysis modified the growth because after a year it has practically disappeared and to-day the only

thing noticeable is an atrophy of the bones and mucous membrane.

Another case in which the growth was practically confined to the epipharynx was so-called sarcoma. He was under observation for two years and though still living, he has passed out of my hands. In this case the mass grew from the left side, mainly around the eustachian tube, covering up in the beginning, not only the left side but also the right side. I started to work with the snare and had the same experience encountered by Dr. Stucky. The hemorrhage was enormous. All these patients have very tractable pharynges and palates, so I carried a piece of gauze into the phaynx and the hemorrhage stopped. I did the operation at intervals of about six months and when I last saw him there was practically no recurrence. The patient is getting along toward that age where, in my experience, these growths have a tendency to disappear. Judging from the literature on the subject these growths do tend to disappear without treatment and I believe if we do operations of less extent than as proposed by Dr. Beck we would have more satifactory results. Another case in which I removed a mass is still under observation.

Four of my cases have been in German farmer boys from 15 to 18 years of age and one in a German girl.

I feel that Dr. Holmes' paper is a distinct contribution to this subject, especially from the standpoint of designating these growths as they should be. As to the fibromata I am in favor of following the histologic classification even if we have to say one is "soft" and one is "hard," because as Dr. Holmes has shown, there is a decided difference in the two conditions as to the progress of the case, the prognosis, treatment and age of the patient.

Dr. C. R. Holmes, Cincinnati: We should absolutely consider these as not sarcoma. Sarcoma is malignant. None of these come under that head. One variety may be classified as fibroma-sarcomas but even then they are not malignant. We have sarcomas of the pharynx and the nose, but they are entirely distinct from this form, and do not come under this classification. The removal of the tumor reported to-day was very simple and without danger but it is perhaps interesting because of its great size and rarity. The firm fibroma is a dangerous growth on account

of its great vascularity. It also had a broader point of attachment. It starts from the fibrous tissue and as it grows it forms adhesions, frequently giving the appearance of having a broad base, but these adhesions do not tend to cause the spread of the tumor. Destroy the nutrient artery in the pedicle, and we kill the tumor.

I want to congratulate Dr. Stucky on the result of his operation, and to thank the society for the interest manifested in my paper.

Dr. J. A. Stucky read a paper upon

Some Naso-Pharyngeal Manifestations of Systemic Disturbances.*

Dr. C. R. Holmes: I desire to say that if we succeed in mastering the subject just referred to, it will have been worth our while coming here. I have studied it for the last three years, began studying it in connection with catarrhal deafness, because I had become tired of the routine inflation and swabbing with such poor results in naso-pharyngeal and aural catarrh. One of the first things we should do is analyze the urine and thoroughly study the the action of the bowels and stomach, and I am glad to say that we can now do vastly more for these catarrhal patients than we could a few years ago. As yet we have not mastered this question, but we are on the right track, and if we will carefully study this subject along these lines, and recognize that it is not local treatment alone we must practice, then we shall soon be able to successfully treat the majority of these cases.

I consider the paper very important, and I am glad the Doctor has taken up the subject in a scientific manner.

Dr. Robert Levy, Denver: This subject is certainly very important, because of failure to obtain satisfactory results by former methods of management. We are in the infancy of the study of this trouble and, after treating a case for a certain length of time, are brought face to face with a helplessness which discourages us and our patients. I have seen many cases, in our high altitude, that might be classed as lithemic throats attended with lithemic manifestations, which also present neurotic symptoms during all times of the year. I have tried to explain this on the

*See page 254.

ground of nervous irritability, and have found it necessary to explain the increased nervous irritability by some other condition, and in the end have reverted to the lithemic explanation. But the question arises: Why is it that many of these cases of apparent, so-called lithemia have this excessive neurotic habit? I am frank to say that, after having gotten along so far in the explanation of the condition, I am again at a loss to account for so many of the cases occurring without the usual lithemic manifestations, without the accompanying urinary analysis, without the accompanying habits of life that we look for, yet presenting exactly the same symptoms. Take an individual who lives on little meat, leads an active life, whose urine is large in quantity, etc., and yet he will present these very symptoms. Those are the cases that puzzled me more, perhaps, than the overfed, meat-eating, liquor-drinking persons.

I feel that the paper is a valuable one, particularly in reference to the examination of the stomach after a test meal and the general examination.

Dr. Holmes: I have gotten to the stage where I have printed diet slips with instructions on them, which I hand to patients, with directions what they must and must not do. I write the name on the slip and, if necessary, modify it for the different cases.

Dr. W. L. Ballenger, Chicago: I don't think we have yet, nor do I think Dr. Stucky believes we have, arrived at the final solution of this problem, but I believe Dr. Stucky is working along the right lines and has added to the literature on the subject. The large intestine is the seat of the absorption of putrefactive and deleterious material. If we can keep that portion of the bowel clean, these patients will improve materially. This can be done in two ways, as described by Dr. Stucky. He gives preference to colon flushing. It can be done, also, by the use of alkaline cathartics. The beneficial results are not so much from absorption of alkaline substances into the blood, as from the antiseptic or antiputrefactive effect upon the intestinal contents. I believe one of the most beneficial effects is the retarding of this putrefactive process, especially that which produces the toxins so poisonous to the system. The point I wish to emphasize is that

we should not attempt to do so much by dieting as by regulating of the intestinal tract.

Dr. Levy: I referred to cases which seemed lithemic through alimentary poison. It is a well recognized fact that toxins absorbed from the lower bowel are the cause of the neuroses. That has been my experience, and it has been demonstrated to my satisfaction that neuroses manifest themselves in proportion to the lack of cleanliness of the lower bowel, which, if properly attended to, will materially relieve the neurotic symptoms.

Dr. O. J. Stein, Chicago: As the discussion has not followed the text of the essay very closely, I feel licensed to refer to some conditions further down in the oro- and laryngo-pharynx. It might explain some of the so-called neurotic manifestations referred to by Dr. Ballenger and Dr. Levy. I refer to conditions about the base of the tongue. I have found that patients with rheumatic or so-called lithemic manifestations who improve markedly under antirheumatic or antilithemic remedies, but not entirely, frequently have trouble about the base of the tongue. Nothing particular may be seen, but, pressing a probe into the follicles and recesses, and with the application of astringents and massage, there is a disappearance of the gravity of the symptoms which remain after the patient has taken antilithemic or antirheumatic remedies. Whether this is psychical or not, I leave to your judgment; but I do not believe it is.

Dr. Stucky: I will say that some of my ear cases improve more rapidly and more satisfactorily under systemic treatment than they do under local treatment. The diet slips mentioned by Dr. Holmes are excellent, but we must know what diet to prescribe for our patients—we must know the exact condition of the gastro-intestinal tract. One of the most prominent men in Lexington came to me with a typical lithemic throat as I thought, with a spasmodic cough almost like a whooping cough and hyperemic condition of the larynx, and no relief was obtained until the alimentary canal was cleansed out. I believe the neurotic condition of many of these patients is due to an auto-intoxication. With reference to saline purgative, I think most of these cases can not well bear the drain of frequent salines. If we keep up the colon flushes daily

or nightly until we get the gut clean we can then keep it clean. The paper was directed first to the gastro-intestinal tract next to the skin, and next to physical exercise.

Dr. Levy: You speak of a "typical lithemic throat." What is it?

Dr. Stucky: A congested condition of the mucous membrane, a stiffness of the muscles, a pricking as if a foreign body had lodged in the throat, general malaise, and the throat always worse after eating heartily or indulging in fermented wines. The local appearance is simply that of congestion with the follicles of the tonsil sometimes plugged up, which a spray of hot alkaline solution will relieve.

Dr. M. A. Goldstein: If a man comes to you with a tickling in his throat, an irritable cough, who is not willing to forego the pleasures of his usual diet and drinking, would you have his colon flushed for a week or two?

Dr. Stucky: Acute cases do not require this method. I simply make it a matter of business with the patient and tell him that if he wants to get rid of his trouble he must submit to the treatment for a while, be careful of his diet and do the things I direct. After he has experienced some relief and the canal has been cleansed he will usually be willing to stick to the treatment.

Dr. Shields: Do you allow hay fever patients to have nitrogenous food?

Dr. Stucky: It depends upon the analysis of the stomach contents and the urine.

Dr. Shields: I have been perplexed by these cases. It is said the majority are due to an intestinal auto-infection and that nitrogenous food is not digested in the intestines.

Dr. Stucky: Often there is a little fermentation in the stomach which nothing relieves as much as washing out the stomach. Some of these patients get along better by taking 6 or 8 ounces of pure water every 2 or 3 hours than anything else.

Dr. N. H. Pierce, Chicago, read a paper on,

A Case of Congenital Fistula of the External Nose.*

Dr. Levy: I would like to ask if you considered the treatment by galvanic cautery or other cauterization before attempting the radical operation?

*See page 258.

Dr. Holmes: How far did it go in through the nose from the bridge?

Dr. Pierce: It dipped down around the outside of the bone and then went inward. There was a communication with the anterior nose, but in all probability that would heal over and when sufficient material had collected to cause pressue it would break through the nose. She gave a history of this breaking through at intervals.

Dr. Ballenger: Did I understand you to say the case was congenital, and when the patient applied to you there had been no history of fistula?

Dr. Pierce: No, there was a history of dermoid at first. These fistulæ rather show this at first. We know there are congenital cases due to incomplete coaptation of the nose.

Dr. Beck: How large was the growth primarily?

Dr. Pierce: The patient described it as a little larger than a cherry when the cavity was infiltrated. There was a slight depression along the dorsum of the nose. It was very marked looking at the profile. The depression extended from the middle of the nasal bone to below the tip. There is little doubt but that trichloracetic acid would have been effective in this case at first. I have seen auricular fistulas heal in this way without other treatment. These fistulæ begin as dermoids and not as an open fistulæ.

Dr. Robt. Levy, Denver, read a paper entitled,

Essentials in the Treatment of Laryngeal Tuberculosis.*

Dr. C. R. Holmes: I would like to ask if it is necessary still to use iodoform in these cases.

Dr. Norval H. Pierce. I have not seen a great many cases of laryngeal tuberculosis in America. In Chicago, at least, we do not see many cases. My experience would lead me to think that all manner of treatment is more or less futile. I believe advance must take place in the direction of early diagnosis and early diagnosis means, as Dr. Levy has pointed out, the early recognition of certain symptoms which are apparently common to a number of diseases, such as anemia and tumefaction in the arytenoid space. I know of cases that have been sent away from Chicago, and positions of some importance given up, because of a laryngeal anemia and vague symptoms in the

*See page 196.

larynx which were apparently recognized by laryngologists as the precursor of tuberculosis of that organ, but there was not tuberculosis either on the larynx or the lungs. It has been mentioned by some writers that the pale gray, circumscribed miliary tubercles can be recognized at a very early stage of the disease, lying under an anemic but unchanged mucous membrane. I have never seen this condition. We know that by far the most frequent point of attack is in the arytenoid space while the vocal bands, especially the upper parts of the vocal bands—the part we can see most plainly are comparatively early affected at an early stage of the disease. The operative procedures that I have adopted in certain cases have never led to any permanent relief. I have curetted the tubercular masses away from the interarytenoid space and have re-established vocalization in some of these patients but sooner or later the disease recurs. The treatment with lactic acid I believe to be more or less empirical. When we consider the numerous cases treated with lactic acid in its various strengths, and appreciate how very very rarely we see recoveries, the question arises in my mind whether or not these patients would not be better of without the irritating effects of the acid. Acting on the discovery of Koch that the oil of cloves is more toxic to the tubercle bacillus than the double chlorid of mercury I have used a solution composed of lactic acid, oil of cloves and acetic ether sufficient to cause the solution to become perfectly clear. The lactic acid and oil of cloves may be reduced in strength according to the wishes of the operator and both may be modified by the addition of glycerin. I believe this treatment has some advantage over the oil of cloves and lactic acid used singly. In one of the worst cases I have seen the patient did not, at least, get any worse in a very long time. To determine whether or not the mixture has any particular advantage would have to be determined by a widespread use, and I mention it simply as a suggestion. It at least has logic for its support.

Dr. M. A. Goldstein, St. Louis: There are two clinical phases which have recurred in my work time and time again. In the first place I have noticed in many of these superficial laryngeal ulcerations after closing over these little ulcerated spots, if the patient remains in the same envi-

ronment or the same climatic conditions, there is an occasional and sometimes rapid recurrence of the ulcerations over the same areas. I have combatted this condition in the prescribed way but nothing seems to prevent these ulcerations, and I have found nothing to bolster up the laryngeal mucous membrane so as to prevent this superficial sloughing.

The other question is in cases where the general condition of the patient and much of the clinical history of the case would indicate a tubercular involvement but no definite primary lesion could be determined. I have been called upon to determine the laryngeal condition in certain cases but have been unable to find any distinct laryngeal association with a tuberculous condition. There is nothing sufficiently well marked in the clinical data, in the surface appearance of the larynx or in the general condition of the patient to fix a diagnosis of tuberculosis. I have thought that perhaps Dr. Levy from his vast experience in his section of the country with these cases could dilate upon this phase of the question.

Dr. Ballenger: I simply wish to refer to one phase of Dr. Levy's paper, which has also been mentioned by Dr. Pierce, namely, the very great value of the early recognition of the tubercular lesion. Dr. Levy mentioned the three cardinal symptoms in the early recognition of laryngeal tuberculosis and I want to mention my experiences in that particular. A young lady came to me with an affection of the larynx and on examination I found the peculiar ashen-gray color of the mucous membrane. I did not examine her chest. She had been to the leading chest specialist of our city, who had been unable to make a diagnosis; her sputum had also been examined by our leading pathologist who was unable to find the tubercle bacillus. Immediately after this she came to me. I recognized this peculiar condition of the larynx and told her to go back to these men for further examination. I wrote a note to each of the gentlemen telling them what I had found and asked that they make further investigations—that I believed the patient had tuberculosis in the incipient stage. She went back to them, the tuberculin test was made and a very marked reaction took place. She has since developed a typical tuberculosis. I had an exactly

similar experience in another case. Personally I have considerable confidence in the ashen-gray color of the mucous membrane and the roughened condition of the interarytenoid space as early signs of tuberculosis. In the treatment of these cases I believe the use of the curette should be followed by lactic acid. It is important on account of the lymph spaces which surround the mass of tubercular infiltration. It is probably impossible to remove the entire mass from the larynx by the simple use of the curette and in order to still further eradicate the tuberculous tissue use of lactic acid should be resorted to. This will still further destroy the tuberculous tissue and thus prevent the extension of the infection through the surrounding lymph spaces. I believe this is one reason why so many cases recur after operation—the work is not made complete.

Dr. Stein: Contrary to the experience of some of the speakers, I think we, as laryngologists, do see a great many cases of tuberculosis of the larynx, and make a diagnosis by looking into the larynx. I think I have. I believe I have made a diagnosis of tuberculosis in many of my cases upon the essential findings, as pointed out by the essayist. While I believe this is often done by inspection, I do not place so much reliance upon that as some do. And I consider of importance in the diagnosis not only the ashen-gray appearance of the larynx, but, also, that of the pharynx, and particularly the inter-arytenoid outgrowths. Many of these little projections are apt to be overlooked unless the examination is extremely careful. They may not be seen in the first or second examination, but after several examinations these things are brought out clearly.

In the treatment of these cases, I employ a method somewhat similar to Freudenthal's, of New York, whom I saw treat a number of cases there. By this method, I have had, almost invariably, good results.

Dr. Beck: A case is at present under my observation where the diagnosis was not at all difficult, because the general symptoms were so pronounced. She is a colored girl, sent to Denver because of her general condition—there being large cavities in the lungs. We know that tubercular laryngitis, as a rule, is secondary, so that with

hoarseness we expect to find a mass in the interarytenoid space. This mass, she tells me, she has felt in the throat for six months, and it is quite large. In this case, there was no sign of ulceration or any tendency to it. I put the patient on general treatment and thought I would try what had been tried in the Leipzig clinic—subcutaneous injections of hetol or cinamic acid. This being a clinical case, I was able to give it full attention. I cannot say whether it was the general treatment or the injections of hetol, but I am very much pleased as to the condition in the larynx. There is not a disappearance, but there is a relief, and the movement in the interarytenoid space is much more free. Three cases were treated by Kauffmann with intravenous injections of hetol, during my stay at the Bohemian Aural Clinic, at Prague and, so far as I can recollect, there was considerable improvement following this treatment.

Dr. Shields: I have found the insufflation of orthoform very good. I agree with Dr. Pierce, that lactic acid is not satisfactory—it has not proved so in my hands. One effect of orthoform is that it produces a necrosis of the parts. I do not believe mucous membrane can form where orthoform is used, because of the necrosis produced by the drug; the necrotic tissue protects the ulcerated surface. Some years ago there was much enthusiasm over the hypodermic use of solutions of guiacol in tubercular enlargement of the larynx, but in recent years I have heard little about it. I would like to ask Dr. Levy what his experience has been with the use of orthoform powder?

Dr. Pierce: I do not want to be misunderstood in this statement, but when I refer to thickenings in the interarytenoid space, I mean those seen in the stages of tubercular laryngitis. I do not want to be misunderstood as asserting that these thickenings are not almost pathognomonic of tubercular laryngitis, but they are not an early symptom of the disease.

My experience with orthoform has been disappointing, to say the least. We have all had experience with the terrible pain, the distress—the ceaseless distress—which is present in the later stages of tubercular laryngitis, when the epiglottis is ulcerated off, the arytenoid regions ulcerated and deglutition is accompanied by exquisite pain. I have used orthoform in these cases, and not once has re-

lief been afforded. On the contrary, I have found it very irritating, although used with olive oil. In the last case in which I used this powder, I found marked edema following each application, and the patient refused absolutely to allow its employment.

Dr. Stucky: In my experience, which is limited, I have found a longer period of relief following a weak solution of chromic acid than by using lactic acid. My experience with orthoform has been similar to that mentioned by Dr. Pierce—I have found it rather disappointing.

Dr. W. E. Sauer, St. Louis: My own experience is limited, but I would like to call attention to one or two points which Dr. Hajek, of Vienna, lays special stress upon in regard to curettement of the larynx. He advises that the patient be observed two or three weeks, taking a daily record of the tempertature, and watching the appetite and especially noting the condition of the larynx. If there be high temperature, the appetite poor, and the process in the lung making marked advancement, he advises not to curette. On the other hand he advises curettement when the general condition of the patient is good and there is little if any fever. He always follows the curettement by application of a concentrated solution of lactic acid. He, with others, does not operate nearly so often as formerly.

Dr. H. W. Loeb: I have run the gamut of the various methods and have experienced the enthusiasm that has waxed rapidly and waned more rapidly over the different methods of treatment and finally I have tried the method of Freudenthal. With his particular solution I have had more or less satisfactory results, perhaps because I have not had sufficient experience, although I have seen quite a number of cases. Men with the experience that Dr. Levy has had in this line of work, who are able to establish a certain line of treatment with certain indications can do the rest of us a great deal of good.

I recall my experience with tuberculosis serum in these cases. Of the cases reported about six years ago one is still living. He was examined by Dr. Porter, Dr. Mulhall, Dr. Glasgow and all, in agreement with my own view, pronounced the disease laryngeal tuberculosis of an advanced type, saying the patient would probably live three

months. He received no local treatment but was treated with the serum. While he improved under the serum, he also improved when the serum was discontinued. I think it was one of those cases of laryngeal tuberculosis that get well in spite of treatment. At the present time I am inclined to use the Freudenthal method on the cases that come to me. It certainly relieves the pain and if we can do nothing else we can promise them more or less ease. I have used the menthol solution in rather weaker strength and also orthoform. We want to learn a great deal more about laryngeal tuberculosis because as a rule the treatment of the larynx is a small thing so for as cure is concerned. My treatment of the larynx is in the direction of keeping the patient from starving to death. I don't anticipate curing them, but to relieve the pain.

Dr. Fayette C. Ewing, St. Louis: About six years ago a case come to me presenting rather obscure symtoms. I put him on hypodermic injections of bichlorid of mercury and the saturated solution of iodid. I took him to Dr. Mulhall, who said there was no doubt that it was a case of laryngeal tuberculosis. I examined the chest but could find nothing then, nor did Dr. Mulhall. Later I went over the case again and found one little crepitating spot. I took him back to Dr. Mulhall, who agreed with me, and I proceeded to treat the patient with applications of lactic acid applied with a swab. The ulceration apparently healed up and he has been living in this town since then, being head cornetist at one of the theaters. He played at Cataline Island all last summer and I was afraid the extra hard work would bring on another attack but he is still blowing his horn. Being a poor man I could not take him away from this work which I felt was congesting the larynx and increasing the tendency to spread, in which Dr. Mulhall agreed. The man weighed 125 pounds when he presented himself to me, and since his cure, which I am justified in designating it since he has been well so long, has kept up to 160 lbs. He is very hoarse there, having been considerable tissue destruction with cicatrization.

Dr. Levy: Many of the questions raised in the discussion have been answered by other gentlemen taking part in the discussion. In regard to iodoform I recognize that the odor is disagreeable, and some patients experience

discomfort from its use. I have tried to find a substitute, but have always gone back to iodoform. What it is in the drug that gives better results, I am not prepared to say, but I have ceased to substitute anything for it. Early diagnosis is a subject upon which we might elaborate at great length. I feel that the laryngocope is not always sufficient to make a diagnosis in certain cases. We know there may be anemia of the larynx as a local manifestation of general anemia. However, when we take into consideration that the anemia of tuberculosis occurs in individuals who have other general symptoms unaccounted for by the general anemia we can frequently, by exclusion, conclude that this anemia points strongly to tuberculosis as the cause. The bacteriologic examination and subsequently the tuberculin test, must be the court of last resort. Concerning the bacteriologic examination in the early stages, we frequently meet with patients who have no expectoration and consequently no way of obtaining, under ordinary conditions, a bacteriologic examination. In these cases I follow the plan of rubbing the larynx freely with plain cotton and smearing this on a cover glass and submitting it to a microspic examination. On one or two occasions I have been able to make a dignosis by finding the bacillus in these rubbings when I could not get it in any other way. Concerning recurrences after an apparent healing of the tubercular ulcers, I do not believe that these are due to inefficient local treatment.

We forget that the same general condition is still operative and in these cases, beside the local treatment, it is essential that a rigid general treatment be adopted if necessary, sending them from the city to the country, or changing their climatic surroundings and compelling complete rest. The treatment with the curette and lactic acid, as pointed out by Dr. Ballenger go hand in hand; the lactic acid should follow the use of the curette, but the use of the curette should be limited to two classes of cases, first, the ulcerative variety, and second, those in which there are soft papillomatous excrescences. In the more firm fibromatous deposit it would be a mistake to use the curette, for I believe it is the use of the curette in these cases and the failure to individualize in its use that have brought this method into disrepute. When we get a good result in

one case by its use we are inclined to use it in all cases. I am satisfied the use of the curette is contraindicated in those cases where we have a deposit that is smooth in outline and firm. In such cases we would do absolute harm by opening new avenues for infection. The peculiar interarytenoid swelling needs attention. We do get this in cases of chronic laryngitis but I believe as, Dr. Stein has said, we will find, if we look carefully, not only in inflammatory infiltration but a decided irregular nodular appearance

I have had no personal experience with the method of Finsen, i. e., phototherapy. While Colorado with its remarkable sunshine might offer many advantages it has never appealed to me as worthy of extensive use.

Dr. Beck's case is very interesting. This patient called on me a day or two before I left home. The girl has an extensive involvement of the lungs with evidences of rapidly advancing tuberculosis, as Dr. Beck has said, but no evidence of breaking down. The characteristic appearance in the larynx is that of distinct tuberculoma, extensive interarytenoid swelling. In this case I should not use the curette and lactic acid treatment, but will see if the patient improves in a general way. In her case I do not believe the local treatment is nearly so important as the general treatment, and I do not subject these patients to the extreme distress of a radical surgical procedure until the general condition improves. Then one may consider the advisability of relieving the laryngeal symptoms.

The submucous injections was at one time a favorite method originally suggested by Major. It is of value only in those cases of infiltration where local applications are not followed by improvement. I ceased to use it for the same reason that I would hesitate to open up an unbroken surface. In the use of orthoform I always feel that we have exaggerated the value that is claimed for it. I am not sanguine of its benefits nor am I encouraged by its use alone. In Freudenthal's emulsion probably more is gained from the method than the orthoform as this remedy is a decided analgesic and is certainly an excellent remedy for palliation. Speaking of the palliative treatment in the extensive cases and the use of chromic acid and lactic acid I have found the pain is often relieved by lactic acid or

any remedy which would destroy the nerve ending. One of the principal causes of the exquisite sensitiveness of these ulcerations was first shown by Dauzac, who made a good many histologic examinations of these tubercular ulcerations and found there were small neuromata at the ends of the exposed nerves which, acting much like corns, pressed on the ends of the nerves and increased the tenderness over and above that of the simple exposed nerve. I believe there are spontaneous cures, but they are exceptional. Many cases get well before and after treatment and we should endeavor to discover, if possible, what process Nature adopts to bring about these spontaneous cures, when we have once solved this we will overcome many of the difficulties now in our way. The point which I wished to make in the paper was the necessity of individualizing, the necessity of studying each case, and each stage of each case, and applying a remedy for that condition.

Dr. O. J. Stein, Chicago, read a paper:

Leucoplakia Buccalis; a Case Treated with the X-Ray.*

Dr. Joseph Beck, Chicago, read a paper:

Pharyngo-Mycosis Leptothrica or Hyperkeratosis Pharyngis.†

Dr. Robert Levy: We are certainly indebted to Dr. Stein for calling attention to this new agent in the treatment of leucoplakia. One of Colorado's most prominent men, has been afflicted with leucoplakia for many years. In this case the cause is excessive smoking and while the small, milk-white deposits did not disappear, the great mass of heavy deposit did disappear upon discontinuing the use of tobacco. Butlin, in his book on the tongue, gives a better insight into the differentiation of these various conditions of leucoplakia, hornified mucous membrane and allied conditions than anything I have ever seen. Did I gather from the paper that the author is satisfied to continue the treatment? In line with the authorities I have read, I have hesitated to adopt any measure that might in the slightest degree act as an irritant, bearing in mind the fact that this condition may exist for many years without producing serious consequence while surgical intervention,

*See page 183.
†See page 215.

the cautery, etc., might encourage development of a malignant affection.

I did not gather from the paper that Dr. Beck had determined any cause for the trouble and would be glad to know what he considers the cause. I have seen quite a few cases of mycosis, the youngest in a child of six years the oldest in a man between 50 and 60 years. These two cases might be taken as types. Both extensively involved the parts from the naso-pharynx down the lateral wall to the base of the tongue and both responded readily to the treatment by galvanic cautery except for the time required to complete cure. There has been complete and permanent relief up to the present time. Dr. Black of Denver has mentioned a case or two cured by smoking. In the case of the elderly man mentioned above, smoking could have been of no avail as he was a heavy smoker at the time the trouble appeared.

Dr. Holmes: I recall a case of leucoplakia for which various forms of treatment were tried, but without benefit—in fact, treatment seemed to irritate the condition. The patient had an atrophy of the optic nerve in the right eye which was found to be of syphilitic origin. He was a heavy smoker, which however in no way influenced the affection.

I have seen between half and one dozen cases of mycosis, and have invariably destroyed all the points with the galvanic cautery, without recurrence. In one case salicylic acid was advised, but that was so painful that the patient objected. and the galvanic cautery substituted.

Last winter I felt a scratching in my own throat which I attributed to a foreign substance. There was no sharp pain, but still it annoyed me so, that one day I asked my first assistant to look into my throat. He did so, and found numerous white spots scattered over the base of the tongue and on the tonsils, being a typical case of pharyngo-mycosis. One of these masses was removed, requiring considerable force and causing bleeding of the crypt. Treatment with galvano-cautery advised but not carried out, as I was obliged to go east in a few days upon my vacation. With rest and outdoor life the symptoms disappeared, and upon my return examination revealed that every one of the spots had disappeared.

Dr. Pierce: I would like to know whether the X-ray was thrown on the diseased area through the external parts or directly into the mouth.

Dr. Stein: I had tubes 6 inches long and the rays were applied directly on the membrane.

Dr. Stucky: For some reason or other I see a good many cases of myosis in Kentucky. I have tried the galvano-cautery and other methods, but never found anything to equal the method suggested in the New York meeting of the American Laryngological, Rhinological and Otological Society several years ago, that is applying a 5 to 20 per cent. solution of pyoktanin. That has given me better results than anything else. It is practically painless and I could teach the patient to apply it himself and report once a week. It usually takes several weeks to get rid of them. There is no reaction like that following the galvanic cautery and other destructive agents.

Dr. Ballenger: I have seen the case of leucoplakia reported by Dr. Stein. I saw the patient when first under observation and, again, this week. I have been very much interested to note the change that has taken place while under treatment by the X-ray—a change seemingly for the worse, as Dr. Stein reported.

In regard to Dr. Beck's paper, I wish to refer to a young lady of 23 years of age, who had been studying voice culture in Berlin and, while there, she noticed a scratching in her throat, and she consulted B. Frankel. She became discouraged and came home. She consulted me, in Chicago, and I resorted to the galvanio-cautery treatment, and at the end of nine sittings there were no signs of mycosis on the tonsils or pillars. This was about 18 months ago. I saw her a few months ago, and the throat was still perfectly clear. I was interested to hear Dr. Stucky's statement of results with other and less severe remedies.

Dr. H. W. Loeb: I was in hopes that Dr. Stein's paper would be a favorable report on the use of the X-ray in leucoplakia. My enthusiasm has been increased in connection with the use of the X-ray by a case, treated by Dr. Pusey, of cancer, in which nearly one-half of the nose was apparently beyond relief, and in which a complete cure resulted. Personally, I know little of leucoplakia, but think I must have had more than my share of my-

cosis, judging from the few cases reported in literature. I was told, in one case, by a prominent laryngologist that I had probably made a mistake in diagnosis, but now I am sure I did not. The cases, thirty in number, have been really mycosis of the type described. I made one observation, which I mentioned before the American Medical Association some years ago—that is: I have never seen a case in which the lingual tonsil was not also involved. My treatment has been invariably with the electrocautery. The reaction is not bad, and the results are very satisfactory, so that I have had no reason to use anything else. I simply destroy the mass and the seat from which it grows, and I have seen but few recurrences. I can confirm the observation that the disease may exist and the patient not be conscious of it. In the last few weeks a case came to me which had been treated for follicular tonsillitis. Anyone accustomed to seeing these cases cannot make a mistake.

Dr. Stein: I will say that leucoplakia may exist for many years without being a serious condition or becoming malignant.

The pertinent remarks of Dr. Beck on pharyngeal mycoses were very interisting. I do not think there should be any difficulty in the differential diagnosis. Leucoplakia buccalis where the white flakes are found, may exist for many years without producing practically any disturbance, but the fact is recognized that leucoplakia buccalis has a tendency to ultimately terminate in malignancy. Answering Dr. Levy's question as to the appearance of the case and the effects of the X-ray, I will say the case now seems far more serious than it did before the application of the X-rays. I tried to make this clear in the description. Whether this is due to the X-ray or not I don't know. I believe leucoplakia is due to a greater or less extent to a predisposing cause in a sensitive mucous membrane, and of course such an irritant as the X-ray being brought to bear upon a sensitive mucous membrane it might be a cause for its aggravation. As to the direct cause I have not been able to determine. The patient denies syphilis has not been a drinker or smoker for over 25 years; he did chew tobacco but stopped that. His teeth were in bad condition and and being a laboring man probably they were not well cared for.

This model in paper shows the apparatus used by Dr. Pusey. There is no burning, the patient experiencing nothing. Without going into the effects of the X-ray upon the tissues, it is sufficient to say that they have no bactericidal action.

Dr. Beck: I feel that the discussion of my paper did not bring out any point as to the etiologic factors of the trouble and give a clew to the treatment.

The use of salicylic acid is not painful. The pyoktanin is a nice thing particularly for diagnostic purpose as it colors this hornified epthelium; it has no particular therapeautic value.

Dr. Beck referred to a case in a young woman. These cases were in women; most of them occur in women though we do not see them in men usually between the ages of 20 and 30. It is wrong to suppose that the longer a case lasts the more difficult it is to remove the mass. They become softer and can be easily brushed off. The epipharynx is reported affected in very few cases. Campbell of Chicago reports two cases in brothers. Two physicians in France took masses from patients suffering with pharyngeal mycosis and implanted them in their throats (tonsils) but they did not develop which proves that the leptothnix is not the etiologic factor, and that it is not an infection communicated from one person to another.

Dr. Stucky: Have you observed that most of the cases of mycosis occur in people living in the country and who are around cows a good deal?

Dr. Beck: I have found it occur in the better class of people. The two clinical cases were in the better class of people.

Dr. Ballenger read a paper,

The Etiology of Deformities and Deviations of the Nasal Septum.*

Dr. M. A. Goldstein: The point in the question of the etiology of septum deformities is that a series of investigators will take a large number of skulls and study them carefully and each investigator will arrive at a different conclusion, one claiming that a malformation of the bone or an unusually high arched palate is mainly responsible

*See page 190.

for septal irregularities. Others believe, and this seems to me the more rational, that there is a lack of proper bone approximation in the median line in fetal life. To us who see the cases clinically it is well known that the nares are irregular—we rarely find a straight septum,—but the difference from the normal nose is so slight that it doesn't amount to more than having a right arm or leg naturally a little longer than the left.

I believe the main cause of septal deformaties is the traumatic one. I have come to that conclusion from the clinical history of cases where septal deformities required attention. In the majority of cases, after all is said, the traumatic feature is paramount.

Dr. Pierce: At the risk of being premature and perhaps without being able to convince in the absence of photograph which I have in my possession, I shall speak of what I believe to be a very potent factor in deflection of the septum and which might be called straightening of the angle between the sphenoid bone and the cervical vertebræ. At birth a line drawn through the sphenoid and a line drawn through the cervical vertebræ will bear a certain relation.

At six months of age the relative angles would be changed.

Toward the end of eighteen months the angle is still further changed.

If the vomer grows and the straining of the spheno-vertebral angle is not normally coordinate you can readily see how the septum must bend.

In some twenty-five cases I have seen undoubted evidence at a very early age of this deflection beginning. I want to go on record now as the originator of that idea which of course must be worked out and which I shall make the subject of a paper at no distant date.

Dr. Stein: I think it was Disse who originated the theory of embryonal origin of deflected septum. This theory was quoted by Freeman in his paper before the Laryngological Association last summer. He says the palate in the eighth month before birth is above the eustachian tube, at birth it is on a level with the tube and after birth is below the tube. This shows the gradual descent. That has been accepted by some as bringing out the high arch-

ed or gothic palate. Dr. Talbott has nicely handled the subject by claiming there is no such thing as a high arched palate, but that it is regulated by a peculiar development, non-development, under-development or over-development of the bones around the palate. This brings us down to Broca's theory on heredity. We get a lot of theories and now we have the Pierce theory which is, however, a very good thought. Speaking of the ethnologic theory, we know the points of development of the septum at different stages of embryonal life. The perpendicular plate is the last to ossify and it is claimed that the perpendicular plate if it overdevelops in ossification characterizes the individual with a peculiar shaped nose; over development produces the Roman nose, underdevelopment shortens it, so that in the new born child where the bridge of the nose is flat it would indicate an underdevelopment until the end of the 6th year, when they are about fully ossified and we get the normal shape of the nose. This might explain some of the cases of deflected septum.

Dr. M. A. Goldstein: I believe we sometimes reach the stage where we are inclined to be too scientific—too much theory, and too little practical. One of the factors mentioned was the frequency of the high arched palate, occurring where there is a decidedly straight septum. That, to me, would appear to disprove the many theories advanced that a high arched palate necessarily forces up the floor of the nose and the septum must find room for expansion laterally. The occurrence of a high arched palate in conjunction with a straight septum is frequent.

Dr. H. W. Loeb: I will make one or two observations confirming Dr. Goldstein's remarks relative to a fairly straight septum where thepalate has a high arch—in fact, I think we rather look for this condition. I am more inclined to view the matter as an overgrowth of the septum itself rather than as due to any arching of the palate. I have had an opportunity for studying the effect of traumatism upon deflection of the septum. I examined a young boy who had received a severe blow on the nose which resulted in separation of the two nasal bones and a slit-like fracture of the septum. Before the accident the septum was slightly inclined to the left side and after the fracture there was a slight deflection to the other side. I am keep-

ing him under observation and shall be able to tell in a year or so whether this traumatism had any influence in causing a deflection to the right side. We often see cases after a traumatism but not having seen them before the traumatism the observations are problematical. If traumatism is the cause why does it not always result so? Everybody gets hit on the nose at some time or other.

Dr. Beck: Do you think the position of children when sleeping lying on their faces would have any influence as a factor in producing a deviation of the septum?

Dr. Ballenger: Dr. Goldstein seems to sustain the Bosworth theory of the traumatic origin of most cases of deflected septum. I do not deny that most cases are perhaps of traumatic origin, but, as Dr. Loeb has observed, while we may get a history of traumatism, because a child has received a blow on the nose it does not necessarilly follow that the deflection is always of traumatic origin. Dr. Goldstein's remark concerning the septum and a high arched palate seem to be unwarranted by the facts as observations have shown that there is an apparent high arch but it does not actually measure higher than the ordinary arch.

Dr. H. W. Loeb; Presentation of Patient,

Eunuchoid Voice in a Female.

This patient, a girl aet. 18, came to me a year ago. She had noticed some trouble with her voice but otherwise was healthy. When I examined her larynx I was surprised to see how large it was. I had occasion to compare it with the larynx of a German woman 5 ft. 11 inches high. In the girl are diameters were greater than in the woman. I sent her to a gynecologist with the statement that he would probably find her to be a hermaphrodite. He found a clitoris five times the normal size otherwise the genital organs were normal. She has no menstrnal disorder. Her voice is of that type known as eunuchoid, found so often in boys at or first after the period of puberty.

Dr. W. B. Shields, St. Louis, read a paper,

The Frequency of Ethmoiditis in So-Called Nasal Catarrh.*

Dr. C. R. Holmes: Did I understand the Doctor to say

*See page 209.

that he does not believe in differentiating between the anterior and posterior cells?

Dr. Shields: The middle cells—not the posterior cells.

Dr. Holmes: I agree with the essayist that we are apt to overlook a disease of the ethmoid. I am quite confident that I have in the past, but now I search more faithfully. I do not think transillumination has any value in ethmoid disease, but the transillumination of the antrum of Highmore is of the greatest importance. If we obtain a distinct reflex from the pupil (and in doubtful cases the pupil should be dilated) then we may as a rule say that the antrum is not involved.

Dr. Stucky: I quite agree with the essayist that this trouble, ethmoiditis, is more common than is generally suffosed. I believe too, that it is increasing in frequency and the probable cause is the grip which is sweeping over this country. One peculiarity about these cases is beside the temperature mentioned by the essayist, the pain and discomfort about the head. This is out of all proportion to the other constitutional symptoms. The pulse is not greatly accelerated and the temperature is not high, but I have repeatedly noticed this headache—a pain between the eyes of a nagging, indescribable character, which is only relieved by cleansing the nasal cavities and giving free drainage. In these cases removal of the tip of the swollen turbinate gives almost magic relief. I do this frequently—whenever there is any pressure. I believe the essayist is correct too, when he says that the suppuration in chronic ethmoiditis drains down into the antrum and frequently infects it, and that the antral trouble is secondary.

Dr. M. A. Goldstein: The free use of adrenalin chlorid 1 to 1000 has made the treatment of these cases of ethmoiditis much more simple. I have observed in this class of grip inflammations mentioned by Dr. Stucky an almost universal congestion of the mucosa of the nasal and accessory sinuses and I use adrenalin chlorid freely. This application is sometimes sufficient to abort acute cases.

Dr. Stucky: Do you use it in full strength?

Dr. Goldstein: 1-1000. I have never seen any adverse results from its use in this strength.

Dr. Levy: I take it that the essayist had in mind a consideration of ethmoiditis in the chronic stage more than

the acute, and that Dr. Goldstein and Dr. Stucky referred more so the acute conditions. There is a great difference in the manifiestations of the two and also in the therapy. The management of the acute conditions is comparatively simple and satisfactory compared with the management of the chronic, and I believe the paper had for its object the calling our attention to the frequent complications of ethmoiditis and the importance of differentiating between the involvement of the anterior, middle and posterior cells, and determining the line of treatment and prognosis. Where the anterior cells alone are involved the treatment is followed usually by good results, but the reverse is true I believe, where the posterior cells are involved. Here we have to deal with complications involving the frontal sinuses and the maxillary antrum. The acute pain mentioned by Dr. Stucky I have always thought neuralgic in character. It is intense from the congestion of the mucous lining of the cells and a consequent hypersensitiveness. Beside adrenalin, not as strong as Dr. Golstein uses it, and hot boric acid washes, I have found invaluable aid in the administration of some antineuralgic remedy internally.

Dr. Pierce: Undoubtedly an inflammation of the anterior and middle cells, they being really the same group, and inflammation of the posterior cells emptying into the superior meatus, have an entirely different signification as regards treatment, diagnosis and prognosis. Inflammation of the posterior cells is rather rare but inflammation of the anterior cells is somewhat frequent, both acute and chronic. The symptoms of inflammation of the anterior cells are pain over the supraorbital region, tenderness on deep pressure into or near the upper portion of the orbit, with a discharge into the middle meatus. In the examination I invaribly use adrenalin solution, 1-1000, on a swab, then the nose is thoroughly cleaned and a search for the discharge is made. A discharge from the anterior ethmoidal cells usually comes out over the head of the middie turbinate or along the anterior third. This is an important point. Discharge from the maxillary antrum tends to pass over the middle third of the inferior turbinated body. The article that has given me the most satisfaction in the treatment of acute inflammations is a powder composed of one part antipyrin, two parts sugar of milk and

one part cocain. This is blown with considerable force into the anterior portion of middle meatus. The relief of supraorbital pain and nasal engorgment has been surprising and will last from several hours to a day.

In the differentiation between ethmoid disease and disease of the antrum of Highmore I place as much dependence on Fraenkel's position as I do on transillumination, and I think the subjective sensation light in the eye is as important as pupillary reflex. In chronic suppurations I have had a few cases where I have taken away the tubercle of the septum, removed the anterior head of the middle turbinate body, and scraped out the lateral wall and yet the suppuration has gone on. I believe in a great many of these cases it takes a deal of courage to get at the seat of the trouble and yet without doing so we may be unsuccessful in the treatment of a great number of these cases of anterior ethmoidal disease. In the scoops as constructed by Grunwald we have very effective instruments for treating them. In two cases I have had inflammation of the orbit cellular tissue resulting with alarming symptoms but both subsided without permanent injury. In one of these cases the discharge continued.

Dr. Stein: Personally I like to make a distinction between anterior, middle and posterior cells because I think it influences the prognosis and treatment. In the treatment I often adopt the method of Bosworth by going to the seat of the disease. When I heard Bosworth make the statement that he introduced a burr into the nose without a speculum, standing at the side of the patient, turning on the current and allowing the burr to go wherever the hand dictated, I was thouroughly astonished. I could not imagine any one having the courage to do that. After trying a great many other means in some desperate cases, I used the burr under the guidance of the eye and with a speculum, but I finally discarded the speculum because the hand was in the way, and so worked without the speculum seated in front of the patient. I did this in several cases, but it takes a lot of courage. The burr seems to lessen the amount of hemorrhage by the way it tears the tissues.

Dr. Holmes: I want to protest against that kind of operating. While there may be men who can do it, it is dangerous to advocate it. Dr. Stein and Dr. Bos-

worth may be able to do it but if we advocate this method I am sure that somebody will sign death certificates as a result. I have dissected about 400 heads, and have cut them in all directions, and have come to the conclusion that on account of the great variation in shape, size, etc., this method of operating is exceedingly dangerous, to say the least.

Dr. Pierce: What advantage is it to stand at the side of the patient and hold the burr without looking through the speculum?

Dr. Stein: There is no particular advantage in using a speculum because the hand gets in the way. The hand piece to my electric engine and the burr I use are short and hence I feel safer without the use of a speculum because I have perfect control of my instrmment. I agree with Dr. Holmes. I am not advocating the method—I simply state what I have done. I mention it because I had good results and coming from such an authority as Bosworth I thought it worth while to speak of it.

Dr. H. W. Loeb: The matter of chronic ethmoiditis, to which the essayist in the main referred, concerns us often, especially in the anterior portion of the cells. In ethmoiditis with suppuration we frequently get good results by permitting drainage to go on as in any other closed cavity; therefore I do not think it is always necessary to subject the patient to the risk of such an operation as Dr. Stein mentioned.

Dr. Shields: I agree with Dr. Holmes and think that transillumination is rather a dubious means of making a diagnosis, but I have seen cases of immense enlargement of the middle turbinate and a somewhat thickened condition of the bone in which transillumination seemed to assist in making a diagnosis. I have found it hard to penetrate the bone in these cases. I have had several cases in which I could find no trace of pus, but the pain and pressure and high temperature indicated retention of purulent matter, and these cases were very puzzling to me and caused me great anxiety for fear of penetrating the cranial cavity in searching for pus. I find the suprarenal capsule an excellent remedy, but I use the powder—about 20 per cent. in water. I apply it on tampons of cotton and the patients complain little of irritation. I have used the adrenalin chlorid also, but in the strength

of 1 to 4000 or 1 to 5000 as a spray for home treatment. The paper was meant to deal with chronic ethmoiditis—nothing was said of acute cases. By chronic catarrhal conditions I mean those cases in which we have no elevation of temperature and a good deal of pain but find little pus, but there is bound to be some pus because most of these cases are infectious. The diagnosis of these cases is often difficult and it sometimes takes an immense amount of courage and more perseverance to obtain a cure. I do not believe in the radical operation by Mr. Lack, of London. From the description of the operation in chronic cases he takes out all the upper external wall of the nose. I should be afraid to do an operation in that region in such a radical manner?

Dr. Holmes: Operating through the nose?

Dr. Shields: Yes. He takes away the middle turbinate and scrapes out all the anterior, middle and posterior cells. In the Laryngoscope of November, 1901, is given a discussion in the Laryngological Society of London and many of those who discussed this operation disagreed with the operator. I do not think the risk of the operation is justifiable. I have seen Dundas Grant use hand burrs in the ethmoidal operation telling by the sense of touch when he is in the cells, when he touches the orbital plate and the different parts. I have never used the burrs. I have recently used Holmes's scissors and found this instrument very satisfactory in taking away the anterior portion of the middle turbinate.

Dr. Holmes: You spoke of a 20 per cent. solution of the suprarenal capsule. It is claimed that you cannot get a solution of that strength—that you cannot get a solution stronger than 10 per cent.

Dr. Shields: I have read that also.

Dr. M. A. Goldstein, St. Louis, read a paper,

Ear Complications and Sequelae of Influenza. (Abstract.)

Over 70 per cent. of all acute inflammatory affection of the middle ear cavity result from previous affection or infections of the pharynx or naso-pharynx. It is in influenza, especially of the epidemic type, which usually attacks the nasal and post nasal areas suddenly and viciously, that the most rapid involvement of the ear ensues.

The symptoms are more severe than those of simple catarrhal otitis; there is sudden, intense deep seated pain, involving much of the temporal region, with rapid tenderness over the mastoid area and profuse serous effusion into the tympanic cavity, vertigo and persistent hemicrania.

Pre-eminent among all measures for the relief of acute inflammation of the middle ear cavity, especially where serous, bloody or purulent effusions has taken place, is paracentesis. Until recently the indications for paracentesis in such conditions has been that of a bulging membrana tympani. The author goes one step further in this direction and urges the free and early incision of the drum membrane as soon as a diagnosis of "grippe ear" has been established. He does not wait for the results of applications, either hot or cold, but establishes a drain from the middle ear cavity at the outset. If the drum membrane is bulging as a result of effusion in the tympanic cavity, the more promptly we evacuate the contents of this cavity the better; if the drum membrane is retracted producing an interference of air equalization from within and consequent pain, the paracentesis re-establishes this air balance. In either case, free incision of the drum membrane is the first principle to be observed.

To promote drainage after paracentisis or spontaneous perforation he uses the one-half inch selvedge gauze strip, either sterilized, carbolated or iodoform, packing the canal from fundus to meatus, and renewing the dressing whenever wet or saturated.

The fauces and naso-pharynx should be frequently cleansed, and the patient should be given constitutional treatment.

To recapitulate, the main points of value in the conduto of influenza otitis:

1. Epidemic or endemic influenza is the etiologic factor in this affection.
2. A careful differentiation should be made between simple otitis media and influenza otitis.
3. Free incision of the drum membrane at the earliest indication of effusion into the tympanic cavity should be made. This free drainage should constitute the most important princlple in the treatment of this affection.
4. A guarded prognosis should be given, especially as concerns the complete restoration of hearing.
5. Conservatism is urged concerning operative interference when mastoid symptoms appear, as many of these symptoms are accompaniments of influenza and should be regarded as neuralgias rather than evidences of suppuration.